X

REVIEW

OF

FOREST ADMINISTRATION

IN

BRITISH INDIA

FOR THE YEAR

1887-88.

BY

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REVIEW

OF

FOREST ADMINISTRATION IN BRITISH INDIA

FOR THE YEAR 1887-88.

CHAPTER I.

AREA AND BOUNDARIES.

AREA.

General.

The following table exhibits the Forest areas, the property of Government, which were under the management and control of the Forest Department on the 1st April 1888:—

Province.		Forest Area, in Square Miles.					Remarks.
Name.	Area, in Square Miles.	Reserved.	Protected.	Unclassed State.	Total.	Proportion of Forests to whole area of Province.	
						Per cent.	
Bengal	150,689	4,987	2,189	4,033	11,209	7	
N.-W. P. and Oudh	106,043	*3,608	73	132	3,813	4	* Includes 77 square miles of *Leased* Forests—*viz.*, 10 square miles leased from the Tehri Garhwal Jaghirs, and 67 from the Raja of Tehri Garhwal.
Punjab	106,613	†1,535	505	3,203	5,243	5	† Includes 333 square miles of *Leased* Forests—*viz.*, 155 square miles leased from the Raja of Bashahr, and 178 square miles from the Raja of Chamba.
Central Provinces	86,501	20,052	...	326	20,378	24	‡ Includes 422 square miles of *Taungya* areas.
Lower Burma	87,220	‡5,091	...	...	5,091	6	§ Estimated area.
Upper Burma	..	...	§5,153	35	5,188	...	‖ Upper Burma and Baluchistan left out of account.
Assam	44,750	3,310	938	5,797	10,045	22	
Coorg	1,583	241	309	308	858	54	
Ajmere	2,711	139	...	...	139	5	
Baluchistan	...	...	...	18	18	...	** This is exclusive of the areas of Feudatory and Tributary States, Zemindaris, and whole Inam Villages
Total	586,110	38,963	9,167	13,852	61,982	‖10	
Berar	17,711	1,542	...	2,574	4,116	23	†† Includes 228 square miles of *Leased* Forests—*viz.*, 63 square miles leased from the Raja of Sandur, 136 square miles from the Raja of Nilambur, 26 square miles from the Raja of Tekkadi, and 3 square miles from the Raja of Nellikutta.
Total Bengal Presidency	603,821	40,505	9,167	16,426	66,098	‖10	
Madras	**84,536	††4,239	‡‡11,517	1,250	17,006	20	‡‡ "Reserved lands," which include 17 square miles *leased* from the Raja of Nilambur.
Bombay	124,352	9,803	4,479	...	14,282	12	
GRAND TOTAL	812,709	54,547	25,163	17,676	97,386	‡11	‡ Upper Burma and Baluchistan left out of account.

Bengal.

The changes in the constitution of the areas under the administration of the Forest Department are exhibited as follows:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (150,689 square miles).
	At the commencement of the year.	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	4,986	3	2	4,987	3
Protected	2,195	...	6	2,189	1
Unclassed State	4,033	...	...	4,033	3
Total .	11,214	3	8	11,209	7

The alterations in area during the year, it will be seen, have been immaterial. The area of Reserved forests in Bengal still amounts only to 3 per cent. of the area of the province. Proposals for the reservation of 219 square miles are under consideration, but even with this addition the Forest area represents but a very small proportion of the country.

North-Western Provinces and Oudh.

The changes that took place during the year under review in the areas of Government Forest property are exhibited as follows:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (106,043 square miles).
	At the commencement of the year.	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	*3,610	1	†3	‡3,608	3
Protected	73	...	...	73	...
Unclassed State	131	1	...	132	1
Total .	3,814	2	3	3,813	4

* Includes 79 square miles of *Leased* forests.
† Includes 2 „ „ „
‡ Includes 77 „ „ „

The changes in area during the year call for no notice.

The settlement of several forest areas in the Central Circle is still in progress, but only a limited field would appear to exist for the material extension of the forest area, which amounts only to 4 per cent. of the total area of the Province.

Punjab.

The following is an abstract of the changes made during the year under review in the areas of the forests:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (106,613 square miles).
	At the commencement of the year.	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	*1,551	†42	‡58	§1,535	1·4
Protected	377	128	...	505	0·5
Unclassed State	3,272	67	136	3,203	3·0
Total .	5,200	237	194	5,243	4·9

* Includes 349 square miles of *Leased* forests.
† „ 40 „ „ „
‡ „ 56 „ „ „
§ „ 333 „ „ „

The changes noted are to a great extent nominal only, and no new areas were added to the Reserved or Protected forests during the year. The large proportion of unclassed State forests is unsatisfactory.

Central Provinces.

The changes in the areas under the Forest Department during the year under review were as follows:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (86,501 square miles).
	At the commencement of the year	Added.	Excluded	At the close of the Year.	
					Per cent.
Reserved	19,955	411	314	20,052	24
Unclassed State	404	23	101	326	...
Total .	20,359	434	415	20,378	24

The area of the Reserves was increased, it will be seen, by 97 square miles. The final reservation of such of the Unclassed forests as are not suited for permanent cultivation and the gradual separation of the A class of Reserves are under consideration.

Lower Burma.

The additions made to the Reserved area were as follows:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (87,220 square miles).
	At the commencement of the year	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	4,788*	308	5	5,091*	6

* Includes 422 square miles of *Taungya* areas.

The area of the Reserved forests was increased by 303 square miles, of which 300 were added in the Tenasserim Circle. The progress of reservation in the Pegu Circle has for some years been almost at a stand-still, owing to the disturbed state of the country and to Civil officers not being available for settlement work; but schemes for the further reservation of large areas are under consideration.

Upper Burma.

The estimated area of forests gazetted during the year was as follows:—

Class of Forests.	Area, in Square Miles.			
	At the commencement of the year.	Added.	Excluded.	At the close of the year.
Reserved	...	...	...	...
Protected	...	5,153	...	5,153
Unclassed	...	35	...	35
Total	...	5,188	...	5,188

Assam.

The changes which took place during the year under review in the constitution of the State forest property are exhibited in the following table:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (44,750 square miles).
	At the commencement of the year	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	2,707	614	11	3,310	7
Protected	1,225	...	287	938	2
Unclassed State	6,126	11	340	5,797	13
Total	10,058	625	638	10,045	22

It will be observed that the progress made in the final reservation of forest estates has been considerable, 614 square miles of forest having been transformed into Reserves under the Forest Act.

Coorg.

The alterations in the forest areas have been as follows:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (1,583 square miles).
	At the commencement of the year.	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	242	...	1	241	15·
Protected	...	309	...	309	19·5
Unclassed	...	308	..	308	19·5
Total	242	617	1	858	54

These additions are due to the forests under the control of the Forest Department having been, for the first time, classified.

Ajmere.

No alterations in the areas of the forests under the control of the Forest Department were made during the year.

Baluchistan.

There are at present no Reserved or Protected forests in Baluchistan, but during the year the area of the Unclassed forests under the control of the Department was increased by 6 square miles.

Andamans.

The forest area in the Andamans has not yet been recorded in the Forest Administration Reports.

Berar.

The following statement exhibits the changes made during the year in the forest areas :—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Province (17,711 square miles).
	At the commencement of the year	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	1,542		...	1,542	9
Protected	..	..	...	...	...
Unclassed	2,599	31	56	2,574	14
Total	4,141	31	56	4,116	23

This alteration was due to 25 square miles of the Unclassed forests being given up for cultivation.

Madras.

The changes effected during the year are shown in the following table :—

Class of Forests.	Area, in Square Miles				Proportion of Forests to whole Area of Presidency (84,536 square miles).
	At the commencement of the year	Added.	Excluded.	At the close of the year.	
					Per cent.
Forests Reserved under Act V of 1882	2,312	715	29	2,998	4
Forests Reserved under previous orders of Government, or regarded as "Reserves" previous to Act V of 1882	1,067	...	54	1,013	1
Leased Forests	198	50	3	245	...
Reserved Lands	7,492	4,768	760	11,500	14
Other forests	1,099	166	15	1,250	1.
Total	12,168	5,699	861	17,006	20

The areas at the close of the year differ in some cases very widely from those shown at the commencement. The most striking variations are under the head of Reserved Lands, the real area of which was very much understated in the Reports for 1886-87, owing in the Southern Circle to a very considerable error in estimating the actual extent, and in the Northern Circle to the omission of over 2,000 square miles of forests of this class. The actual addition to the area of Reserved forests during the year was 560 square miles in the Southern and 150 square miles in the Northern Circle, or a total of 710 square miles, against 685 square miles in 1886-87. The area of all classes of forests under the control of the Department on the 31st March 1888 was 17,006 square miles, the real net addition during the year, as distinguished from increases due to mere correction of area, being 1,543 square miles.

Bombay.

The changes which took place in the constitution of the areas under the control of the Forest Administration during the year under review are summarised in the following table:—

Class of Forests.	Area, in Square Miles.				Proportion of Forests to whole Area of Presidency (124,352 square miles).
	At the commencement of the year.	Added.	Excluded.	At the close of the year.	
					Per cent.
Reserved	9,753	354	304	9,803	8
Protected	4,492	28	41	4,479	4
Total .	14,245	382	345	14,282	12

The changes are due to Forest Settlement and Survey operations, to the summary transformation of a considerable area in the Panch Mahals district from the class of Reserved into that of Protected forests, and to the correction of mistakes in calculations and book-entries.

CHAPTER II.

SURVEYS AND WORKING-PLANS.

I.—Surveys.

The principal field-operations of the Forest Survey Branch were confined to Berar, but other surveys in progress during the previous year in Bengal, the Punjab, and the North-Western Provinces were continued, and new surveys were taken in hand in the Central Provinces and in the North-Western Provinces.

The total area topographically surveyed by the Forest Survey Branch amounted to 979 square miles, of which 426 square miles were mapped on the 4-inch scale and 553 on the 2-inch scale.

In the office, besides the computing, the drawing of 113 sheets of maps was completed, tracings were made of 182 maps, 2,051 printed maps of various kinds were coloured, and lists were prepared of the best available forest-maps in the various Provinces.

The cost of the work done was exceedingly moderate and compares favourably with that of other surveys. The final rates for the survey of the Melghat forests are shown to amount to R80 per square mile for the surveys on the 4-inch scale, and to R57 per square mile for those on the 2-inch scale.

Berar.

During the year 760 square miles were topographically surveyed in detail, 207 square miles being mapped on the scale of 4 inches to one mile and 553 square miles on the scale of 2 inches to one mile. The survey of the Melghat forests has now been completed, and a considerable area has been prepared in advance for detail survey in South Berar, as soon as it shall have been decided what lands shall be included in "State Forests" under the new Forest Law, which is on the point of issue. The area already surveyed in detail in Berar includes the whole of the Melghat taluk, the Bingara jagir, the hilly portion of the Akola district adjoining the Melghat, and the State forests of Garu-Matergaon in the Buldana district.

Bengal.

The boundary survey of the State forests in the Singbhum district was continued and 121 miles of boundary were completed.

Punjab.

The survey of the Leased forests in Bashahr was continued; 71·5 square miles of forest were mapped on the scale of 4 inches to one mile, and 70 square miles were triangulated.

North-Western Provinces.

The topographical survey of the Ninglat and Gogar forests in the Naini Tal division was completed, 31·8 square miles being topographically surveyed and mapped on the 4-inch scale. The survey of the Tehri-Garhwal forests was also taken in hand, and 190 square miles were triangulated.

Central Provinces.

In the Central Provinces, 116 square miles of State forests in the Jubbul-

pore district were mapped on the scale of 4 inches to one mile, and 510 square miles were triangulated in the Raipur district.

Madras.

Under recent arrangements, the Survey of India Department has undertaken the survey of the forests in the Madras Presidency, and during the year the Madras party surveyed 8 square miles on the scale of 4 inches to 1 mile and 245 square miles on the scale of 1 inch to 1 mile; 1,000 square miles were also triangulated in advance. The maps prepared on the 1-inch scale were, however, found to be on too small a scale to be useful for Forest purposes.

Bombay.

In the Northern Circle 150 square miles and in the Southern Circle 113 square miles, in all 263 square miles, were topographically surveyed on the scale of 8 inches to 1 mile by a Topographical Survey party of the Survey of India. In the Sind Circle 32 square miles were surveyed on the same scale under the supervision of officers of the Forest Department. The cost of the survey by the Topographical Survey party amounted to R272 per square mile in the Northern, and to R250 per square mile in the Southern, Circle.

II.—Working Plans.

Various circumstances, but more especially the numerical weakness of the Forest Staff in nearly every Province, prevented much progress being made during the year in the preparation of Working-Plans. There has, too, been a general tendency to over-elaborate the Plans prepared, and this has also retarded progress. It has not yet been sufficiently realised that as the more systematic management of the forests necessitates the *immediate* preparation of a very large number of Working-Plans, these must, for the present, be of a very simple description and based on such data as are readily obtainable.

Working-Plans Divisions have been sanctioned under the orders of the Government of India for Bengal, the North-Western Provinces and Oudh, the Punjab, Lower Burma, and Assam; but, owing to there being no qualified officers available to fill these posts, the divisions were in abeyance in Bengal and in the Punjab for the greater part of the year. No Working-Plans Divisions have as yet been sanctioned for the Central Provinces, Upper Burma, or for the minor charges in Coorg, Ajmere, Baluchistan, and the Andamans.

There are no special Working-Plans establishments employed in Madras. In Bombay there are special Branches for the preparation of Working-Plans in both the Northern and Southern Circles.

The following Working-Plans were submitted during the year for the opinion of the Inspector General of Forests:—

Serial numbers	Province.	District.	Forests	Area of Working-Circle, in square miles.	Kind of Forest.
1	North-Western Provinces and Oudh .	Tehri Garhwal .	Tehri Leased forests	71 (approximate).	Deodar, pines, and miscellaneous high forest.
2	Coorg . . .	.....	Nalkeri-Hatgat forests	83	Teak and miscellaneous high forest.

Bengal.

The sanctioned Working-Plans Division was in abeyance during the year, there being no officer available for the post.

North-Western Provinces and Oudh.

The sanctioned Working-Plans Division was employed in the *School Circle*, in which Working-Plans for the Tehri-Garhwal deodar forests and for the Dehra Dun forests were submitted for the orders of Government. The field-work in connection with the preparation of a Working-Plan for the *Pinus longifolia* forests in Jaunsar was carried on and nearly completed during the year.

In the *Central Circle* the collection of data for the preparation of provisional Working-Plans for the Rehri and Kotri-Palain forests in the Garhwal and Ganges Divisions was commenced, but no new permanent Working-Plans were taken in hand.

In the *Oudh Circle* a revised plan for the Kheri forests was under preparation by the Conservator.

Punjab.

The Working-Plans for Chamba, Changa Manga, Bhera, Khanpur, and Shahdera, relating to an area of 245,120 acres, were finally sanctioned. Plans for Kalesar and for Murree and Kahuta, providing for the management of 126,721 acres, were completed, but were still under examination.

The sanctioned Working-Plans Division for the Province was in abeyance during the greater part of the year, owing to the departure of the officer in charge on furlough and there being no one to replace him.

Central Provinces.

Owing to the want of competent officers, nothing was done in the matter of providing Working-Plans for the immense forest area in this Province.

Lower Burma.

In the *Tenasserim Circle* about 30 miles of linear valuation-surveys were carried out, with a view to supplement the data already collected for the preparation of a rough Working-Plan for the Pyinkado tracts. The results of these surveys, together with the Forest Officer's baggage, were, however, destroyed by dacoits.

In the *Pegu Circle* the examination of the Minhla, Myaung, Gamon, and Taung Reserves was completed, and that of the Baubin Reserve commenced, by the Working-Plans party during the working season; and all the necessary data for the elaboration of Working-Plans for about 150 square miles of forests were collected.

Upper Burma.

Linear valuation-surveys were made over about 2,000 acres in the Chindwin, Mandalay, Mu, and Pyinmana Divisions, in order to obtain roughly the proportions of living teak of different ages to girdled and dead teak. From these data, when recorded over a sufficient area of any particular forest, it will be possible to decide whether girdlings have already attained to or exceeded the possibility of the forest.

Assam.

A Working-Plans Division was established in Assam in 1886-87. During the year all the data collected in the previous year respecting the Dambu forest

were tabulated and arranged, and the necessary maps prepared. The Darugiri forest was divided into compartments and sub-compartments, and an estimate of the growing stock, based on linear surveys which extended over 491 acres, or 25 per cent. of the total area, was made of the sâl tracts.

Coorg.

The Working-Plan of the Nalkeri-Hatgat forest was revised by the Chief Forest Officer of the Province, and the exploitation was based on area instead of, as formerly, on volume. The Mowkal forest, of 8,281 acres, was divided into compartments and a portion of them described.

Ajmere; Baluchistan; Andamans.

Nothing was done in these Provinces in connection with the preparation of Working-Plans.

Berar.

It was recorded that some alteration in the estimated outturn of the Raipur-Makla forest would be required, but nothing was done towards revising this estimate.

Madras.

In the *Southern Circle*, owing to the want of surveys and to so much of the time of the staff being taken up with the selection and settlement of the forests, very little was done in connection with the preparation of Working-Plans. Experimental fellings were made in some Reserves in Chingleput, and the Pulrambakam and Tandarai forests were divided into compartments. In North Arcot 17,769 sandal-wood trees were counted in one third of the Pullapanad. Preliminary Working-Plans were prepared for a small portion of the Kanavoipudur Reserve in Salem, for about 21 square miles of the hill forests of the Manaparai subdivision, in Trichinopoly, and for the plantations at Kodaikanal in Madura. Preliminary Plans for the Chinnar and Noyil Vellengiri working-circles in South Coimbatore were forwarded to Government.

Bombay.

In the *Northern Circle* in the Thana district, where a uniform method of forest treatment of coppice with standards has been adopted, 6,120 acres of forest blocks previously selected for fellings were laid out in 136 "coupes." The forests in the several ranges were also partitioned off into 229 blocks, of an average area of about 2,000 acres each.

In the *Southern Circle* a commencement was made in the preparation of a Working-Plan for 200 square miles of forests in Kanara, and the growing stock on 1,029 acres of forests was enumerated. In Belgaum the stock on 43,967 acres of forest was estimated, and in Dharwar the trees on 3,438 acres were measured and counted.

CHAPTER III.

PROTECTION AND IMPROVEMENT.

I.—General.

Establishments.

The insufficiency of the present staff and the difficulty it experiences in dealing with the yearly increasing work with which it is charged were prominently brought to notice in most of the Provincial Reports for the year under review. It is generally admitted that the present Forest Staff is too weak to adequately protect and develop the valuable State Forest property, which already yields a clear net revenue to the Government of 42 lakhs of rupees, and which is likely to yield considerably more in the immediate future. It will, however, be necessary to entrust Natives of the country with the execution of many of the duties which have hitherto been more or less exclusively performed by Europeans, for whose services, when employed on duties which can be performed by a cheaper agency, the State is paying an unnecessarily high rate. A scheme for the reorganization of the Forest Department recently submitted to the Secretary of State is intended to remedy the defects to which reference has now been made.

The accompanying statement shows the relative average importance of the charges held by members of various grades of the Forest Staff employed in each Province :—

Name of Circle.	Average Forest Area under the control of the Staff during the past five years in each			Average Gross Revenue and Expenditure.					
				Per Conservator.		Per Divisional Officer.		Per Range Officer.	
	Conservator's Circle.	Division.	Range.	Revenue.	Expenditure	Revenue.	Expenditure.	Revenue	Expenditure.
	Sq. miles.	Sq. miles	Sq. miles.	R	R	R	R	R	R
Bengal	11,260	1,880	490	6,34,869	3,96,655	90,696	56,665	27,603	17,246
N.-W. P. and Oudh. — Central Circle	1,751	433	346	5,01,677	2,61,389	1,25,419	65,317	1,00,335	52,278
N.-W. P. and Oudh. — Oudh ,,	1,188	297	297	6,70,563	4,46,545	1,34,113	89,309	1,67,641	1,11,636
N.-W. P. and Oudh. — School ,,	795	265	114	3,21,002	2,49,198	1,07,001	83,066	45 857	35,600
Punjab	4,824	438	201	8,81,832	6,56,224	80,139	59,657	36,868	27,343
Central Provinces	20,033	1,178	770	10,21,929	4,85,9 9	60,113	28,583	39,305	18,689
Lower Burma. — Pegu Circle*	3,231	461	135	15,69,924	7,79,801	1,96,240	97,475	65,413	32,492
Lower Burma. — Tenasserim Circle*	1,179	295	196	5,14,412	3,58,106	1,28,603	89,526	85,735	59,684
Upper Burma†	5,188	618	370	2,96,876	1,21,152	37,109	15,144	21,205	8,654
Assam	9,777	1,086	1,397	2,13,567	2,09,587	21,357	20,959	30,509	29,941
Berar	4,271	712	475	3,30,845	1,64,753	66,169	32,951	33,084	16,475
‡ Average under Government of India	5,772	699	436	6,32,772	3,75,393	95,205	58,062	59,414	37,276
Madras — Northern Circle	4,737	474	237	5,22,757	3,98,319	52,275	39,832	26,138	19,916
Madras — Southern ,,	5,806	447	200	6,65,640	5,82,567	51,203	44,813	22,953	20,088
Bombay — Northern Circle	8,200	683	304	9,77,213	6,55,226	75 170	50,402	36,193	24,268
Bombay — Southern ,,	5,265	752	752	13,70,482	6,63,570	1,71,310	82,946	1,95,783	94,796
Bombay — Sind ,,	3,528	882	706	5,94,789	4,46,702	1,48,697	1,11,675	1,18,958	89,340
Average for Madras and Bombay	5,507	647	440	8,26,176	5,49,277	99,731	65,933	80,005	49,681
Average for all India	5,688	673	438	7,29,474	4,62,335	97,468	61,997	69,709	43,478

* The areas given as under the control of the Forest Staff are *Reserves* only.
† Figures for 1887-88 only.
‡ Exclusive of Coorg Ajmere, Baluchistan, and the Andamans.

Bengal.

There is a difficulty in securing the services of suitable men to act as Foresters.

North-Western Provinces and Oudh.

The number of officers in the Upper Controlling Staff is stated by some of the Conservators to be insufficient for the work, which is increasing annually. The class of Upper Subordinates is generally well reported on and fair progress, it is said, has been made in training these men.

Punjab.

The Conservator reports that the Department is short-handed and that the development of Forest business calls for an increased staff, no allowance having been made for officers absent on leave. The Foresters and Guards have, generally speaking, done excellent work, though several men of the latter class had to be dismissed.

Lower Burma.

No alteration has been made in the scale of permanent establishments.

Upper Burma.

The organization of the Department, especially the employment of subordinates, was very much retarded by the paucity of gazetted officers appointed in the first instance and the delay in bringing the necessary staff to anything approaching completion. Subordinates at the very commencement of operations could be trusted to do nothing, and there was no use in appointing them without the closest European supervision. They would either have declined to move out into the district, or considered their appointments endowed with all the benefices customary to the Burmese rule and proceeded to collect revenue on their own account.

The provisional permanent staff, in so far as Forest and Depôt establishments go, is purely tentative. It will have to be doubled, at least, as the forests are brought within touch and their stricter protection as Reserves has to be arranged for. Some early additions to Office establishments, which have been fixed at present requirements, will also be a natural consequence of the development of the Circle.

Assam.

The permanently-sanctioned Protective establishment in the Assam Forest Department is small, and has, on account of the large additional areas gazetted as Reserves since it was sanctioned and the further development of trade in forest-produce, to be strengthened annually by a large temporary establishment.

Coorg.

It is stated that the establishment requires revision and strengthening.

Ajmere.

It is said that Foresters are badly paid.

Baluchistan.

No remarks.

Berar.

The Conservator writes that the Superior staff is so much below what is required that it is impossible to grant any leave to the officers composing it.

Madras.

The Conservator of the Southern Circle writes :—

The Conservator's charge comprises 13 Divisions of 62,980 square miles in area, including 7,555 square miles of Reserves. A District Forest Officer's average charge is 4,845 square miles of area, including 581 square miles of Reserves; a Range officer's average charge is 913 square miles, including 109 square miles of Reserves; and a Forest Guard's charge is 175 square miles, including 21 square miles of Reserves.

Thirty-nine out of the sixty-nine forest-ranges were in the charge of Foresters, for want of sufficient Rangers, and this was a constant ground for complaint from the District Forest Officers.

Bombay.

The Conservator of the Northern Circle writes :—

The average size of a forest-division in the Northern Circle is about 742 square miles, which is twelve times larger than the average size of a forest-division in France, where experience, extending over generations of Forest Administration, has shown how far the supervising capability of a single officer can profitably extend.

(ii.) General Protection.

The subjoined statement compares the results of protection for the present and the past year, as regards the number of offences taken cognizance of under the Forest Acts :—

Province.	Number of Cases taken into Court.		Number of Cases Compounded.		Total.		Proportion of Convictions to the total number of Cases decided by the Courts.	
	1887-88.	1886-87.	1887-88.	1886-87.	1887-88.	1886-87.	1887-88.	1886-87.
							Per cent	Per cent.
Bengal	516	839	1,867	882	2,383	1,721	91	89
N.-W. P. and Oudh	158	248	715	814	873	1,062	79	78
Punjab	1,487	1,299	335	316	1,822	1,615	67	81
Central Provinces	277	422	6,804	6,264	7,081	6,686	84	79
Burma (Lower)	295	370	*108	312	403	682	93	91
Burma (Upper)	21	...	†	...	21	...	93	...
Assam	140	113	193	50	333	163	71	83
Coorg	8	10	‡	§	8	10	100	70
Ajmere	50	81	188	118	238	199	92	93
Baluchistan	12	5	37	54	49	59	54	75
Total	2,964	3,387	10,247	8,810	13,211	12,197	77	84
Berar	387	406	...	...	387	406	82	76
Total Bengal Presidency	3,351	3,793	10,247	8,810	13,598	12,603	77	83
Madras	2,312	2,333	787	700	3,099	3,033	75	69
Bombay	976	1,045	7,241	5,805	8,217	6,850	73	67
GRAND TOTAL	6,639	7,171	18,275	15,315	24,914	22,486	76	72

* In the Tenasserim Circle only. The figures (527) for the Pegu Circle relate to *persons*, not cases.
† Information wanting.
‡ Compensation to the amount of R295 was recovered for damage done to Sandal trees.
§ Compensation to the amount of R178 was recovered for damage done to Sandal trees, also for illicit grazing.

The total number of cases brought into court was seven per cent. less than in the previous year; but the average of convictions was higher, being 76 per cent., as compared with 72 per cent. in the previous year. In Bengal, the Central Provinces, Burma, Coorg, and Ajmere a very high average of convictions was obtained. The results as regards the Punjab, Assam, Baluchistan, Madras, and Bombay were not so good, although in the case of the Presidencies there was a slight improvement as compared with the previous year. The number of cases compounded increased by nearly 20 per cent., the greatest increase being in Bombay.

Bengal.

There was a considerable decrease in the number of cases brought into court, and an increase in the number of convictions. More than double the number of cases were compounded during the year under review than in the previous year, the majority of the cases being in the Sundarbans Division. It is said that this was due to better supervision and that most of the offences compounded were such as could only be suitably dealt with in that way.

North-Western Provinces and Oudh.

The cases before the courts were much fewer than in the previous year, and the number of cases compounded also shows a decrease. It would seem to be questionable whether the record of offences adequately represents the extent to which the Forest Laws are infringed by the people.

Punjab.

Although the number of cases taken into court was greater than in the previous year, the proportion of convictions to the total number of cases decreased by 17 per cent., and is lower than in any other Province, except Baluchistan. This fact, the reasons for which are not explained, would appear to point to some defect in the mode of applying the Forest Laws in the Punjab. The law regarding the compounding of offences by Forest Officers would appear to have been practically in abeyance except in one division. The number of animals impounded was 44,826, as compared with 40,688 during the previous year.

Central Provinces.

There was a decrease in the number of cases brought into court, while the percentage of convictions was greater. The proportion of cases compounded, as compared with the number of cases taken into court, continues to be remarkably high.

Lower Burma.

The number of cases taken into court decreased by 20 per cent. The number of offences compounded in the Pegu Circle is not given, so that no comparison with the previous year is possible.

Upper Burma.

The Upper Burma Forest Regulation and Rules came into force in August 1887, and although steps were immediately taken to make their provisions known and to enforce them, a very small number of cases were, necessarily, taken into court.

Assam.

There was a slight increase in the number of cases taken into court, but the percentage of convictions decreased by 14 per cent. It is stated that the offences, taken as a whole, are petty, especially those committed by the villagers, as distinguished from the hired servants of traders.

Coorg.

There were only eight cases taken into court, in seven of which convictions were obtained and one was pending. A few petty cases were compounded.

Ajmere.

The number of cases taken into court decreased by 38 per cent., as compared with the previous year, while the percentage of convictions remained practically the same. The number of cases compounded was 59 per cent. more than during the preceding year. All the cases, it is stated, were of a petty nature. The number of animals impounded was 2,924, as compared with 4,771 in the previous year. The decrease is due to a larger fodder-supply consequent on more favourable rains.

Baluchistan.

The number of cases taken into court was more than double that of the previous year; there was a decrease in the number of cases compounded.

Andamans.

No Protective staff is entertained in the Andamans, and no prosecutions took place.

Berar.

The number of cases taken into court slightly decreased, but the proportion of convictions rose. Complaints were made of the difficulty of proving cases and the non-deterrent punishments inflicted by the Magistrates.

Madras.

The number of cases taken into court and the number of cases compounded remained practically the same as during the previous year, and call for no special remarks. The percentage of convictions, however, increased slightly.

Bombay.

The number of cases taken into court was somewhat less than in the previous year, and, looking to the large expanse of country covered by the forests, their scattered nature, and in many cases the dense population surrounding them, is exceedingly low. The number of cases compounded increased considerably as compared with the number compounded in the previous year. This number bears a very high proportion to the number of cases taken into court. It is stated, however, that the cases compounded were all minor offences, which it would not suit the interests of Forest Administration to treat more severely.

II.—Protection from Fire.

General.

The following table exhibits the areas under fire-protection in 1887-88, and the results of the year's operations compared with those of 1886-87 :—

Province.	Area, in Square Miles.				Proportion of Failures to area attempted.		Cost.				Proportion of area under Fire-protection to total area of Reserves (leased forests included).		Year when Fire conservancy commenced.
	Attempted.		Protected.				Per square mile protected.		Per acre protected.				
	1887-88	1886-87	1887-88.	1886-87.	1887-88	1886-87.	1887-88.	1886-87.	1887-88.	1886-87.	1887-88	1886-87.	
					Per cent	Per cent	R	R	Pies.	Pies.	Per cent	Per cent.	
Bengal	*1,565	1,311	†1,391	1,139	11	13	13	12	4	3	31	31	1872
N.-W. P. and Oudh	1,926	1,801	1,834	1,602	5	11	21	23	6	7	‡52	50	1869
Punjab	416	374	410	282	1	25	4	6	1	2	27	24	1871
Central Provinces	1,909	1,556	1,741	1,441	9	7	16	13	5	4	10	8	1864
Burma (Lower)	309	303	216	280	30	8	67	51	20	15	§7	§7	1857
Assam	300	278	294	275	2	1	26	34	8	10	9	10	1873
Coorg	201	201	194	162	3	19	19	19	6	6	83	83	1876
Ajmere	139	139	139	139	...	...	5	5	2	2	100	100	1874
Total	6,765	5,963	6,219	5,320	8	11	18	19	5	6	18	16	.
Berar	1,044	1,044	999	1,021	4	2	6	6	2	2	94	94	1870
Total Bengal Presdy.	7,809	7,007	7,218	6,341	8	10	16	17	5	5	19	18	.
Madras	2,569	2 250	2,452	2,059	5	9	14	14	4	4	60	63	1867
Bombay	9,773	11,078	8,817	10,291	10	7	·00	‖	·06	...	‖68	¶78	1874
Grand Total	20,151	20,335	18,487	18,691	8	8	8	7	2	2	37	36	...

* Includes 33 square miles of *proposed* Reserves in the Singbhum subdivision.

† Includes 13 square miles of ditto ditto.

‡ In Oudh and School Circles 69 per cent, in Central Circle (taking Reserved and Protected forests into account, as done by the Conservator) 33 per cent.

§ *Taungya* areas not included.

‖ In Sind Circle 100 per cent., in Northern and Southern Circles (taking Reserved and Protected forests into account, as done by Conservators) 66 per cent.

¶ In Sind Circle 100 per cent., in Northern and Southern Circles (taking Reserved and Protected forests into account, as done by Conservators) 77 per cent.

Fire-protection has not been commenced in Upper Burma, or in Baluchistan, and is not required in the Andamans.

There was a total increase during the year of the area attempted in the Bengal Presidency of 802 square miles. The principal increase occurred in the Central Provinces (353 square miles), in Bengal (254 square miles), and in the North-Western Provinces and Oudh (125 square miles). There was also an increase in Madras of 319 square miles, but in Bombay there was a nominal falling off of considerable extent, amounting to 1,305 square miles. This, it is stated, was due to the fact that during the year under review, in the Southern Circle, only those areas are shown as Protected for which special precautions were taken; whereas hitherto the practice has been to include in the returns all areas alleged to have escaped fire, but for which no special protective measures were instituted.

The total area under protection in all the provinces (including Madras and Bombay) was 20,151 square miles, as compared with 20,335 square miles during the previous year. Of this area, 1,664 square miles, or 8 per cent., were burnt, as compared with 1,644 square miles during the previous year.

The cost as hitherto was least in Bombay, where it averaged 3 annas and 2 pies per square mile, and highest in Burma, where it amounted to R67 per square mile. If we except Bombay, the average cost came to R16 per square mile, as in the previous year.

Bengal.

The operations connected with fire-protection were generally successful. The total area attempted by means of isolation, and also by less extensive measures and rules, amounted to 1,134,646 acres, or 127,363 acres more than in the preceding year, and the percentage of areas which escaped fire rose from 80·9 to 89 9. The expenditure incurred on this account was R18,107, against R14,378 in 1886-87. The average cost of 3·4 pies per acre protected during the year is far from excessive, especially as the results generally were very satisfactory. In Reserved forests an area of 92·6 per cent. escaped fire during the exceptionally dry season of 1888, against 89 per cent. in 1887.

North-Western Provinces and Oudh.

The results of the year's operations were entirely successful throughout the province; 80,000 acres were added to the area under fire-conservancy, and only 5 per cent. of the area attempted to be protected was passed over by fires, compared with 11 per cent. in 1887. The expense of protection was also reduced, especially in the Central Circle, where the comparatively high cost has been noticed in past years. As the season of 1888 was by no means favourable to protective measures, owing to the exceptional dryness of June, the success of the Department is the greater.

Punjab.

The area affected by fires during the hot season of 1887-88 was only 10,000 acres, which was small compared with that of the previous year, when the enormous area of 135,000 acres was burnt over, chiefly by a disastrous fire which raged in Murree and Kahuta in May 1887.

Central Provinces.

The area under fire-protection increased from 1,556 square miles to 1,909 square miles, and now comprises 10 per cent. of the total area of Reserves. The cost per square mile, however, rose from R13 to R16, and the proportion of failures from 7 to 9 per cent. Both the rise in cost and the high percentage of failures are attributed to the extensive conflagrations which took place in the Nimar district. But for these disastrous fires the year's work would have been the best on record.

The tracts which escaped fire, without any special arrangements having been devised for their protection, exceeded by four times the area of those artificially protected. No reliability is claimed for the figures, but they conclusively show that during the present year extensive areas escaped where in former years the whole of the forests were burnt, and this notwithstanding the unfavourable character of the season.

Lower Burma.

The work done during the year as regards fire-protection was less successful than usual. The season was unfavourable, the hot weather protracted, and the usual early showers entirely absent; and much trouble was caused by incendiaries and dacoits, who, driven from the open country, had to take refuge in the forests. A particularly grave feature is that considerable areas of plantations were entered by fire, amounting in the Pegu Circle alone to upwards of 4,000 acres. Considerable sums of money were spent on these areas, and they were, it is understood, in a flourishing condition.

Upper Burma.

No special fire-protective operations were undertaken. An attempt was made to enlist the help of the people in protecting a young-teak tract, but this was not successful.

Assam.

The area under fire-protection was increased by 22 square miles, but that of the Reserves has been more rapidly extended.

There was a considerable decrease in the cost per square mile, as compared with the previous year, but the proportion of failures to the area attempted, though still very small, increased.

Coorg.

The results of fire-protection were satisfactory, fires having entered only 7 square miles, as compared with 39 square miles in the previous year. The cost of the work remained the same.

Ajmere-Merwara.

The measures taken for the protection of the forest Reserves from fire were almost completely successful; only two fires occurred, which burnt over in all 12½ acres of forest.

Baluchistan.

No fire-protective measures were undertaken.

Andamans.

Fire-protection is unnecessary, as the forests are too moist for fires to occur.

Berar.

In the Wun District serious fires again took place, by which 22 per cent. as compared with 12 per cent. in the previous year, of the forest area attempted was burnt. The area attempted in the whole province and the cost of the operations remained practically the same as in the previous year. The failures were, however, 14,146 acres more.

Madras.

There was a satisfactory improvement both in the area over which protection was attempted and in the results obtained. The average cost of protection was, too, maintained at a fairly moderate rate.

Bombay.

The area which it was attempted to protect was nominally less than in the previous year, but, as has already been explained, this is due to the fact that areas not specially protected have this year for the first time been excluded from the returns. Although a smaller area was specially protected, a slightly larger area (956 square miles, as against 787 square miles) was burnt over than during the previous year. The cost of protection increased from 2 annas per square mile to something over 3 annas, but it is still most remarkably low, as compared with the cost of protecting forests from fire in other provinces.

III.—Protection from Cattle.

General.

Of the causes which have led to the disappearance of forests in inhabited countries, none have been more powerful or universal, if we except fires and the clearing of wooded lands for cultivation, than the grazing and browsing of animals. It is, however, only natural that attempts to close areas of forest and waste over which flocks and herds have been accustomed to wander, should meet with opposition, and cause, at first at any rate, some discontent. But no closures are effected without full consideration of the requirements of the people in the matter of grazing. It is, of course, possible that, in a small proportion of cases, the shutting up of parts of the forests may cause real inconvenience; but in far the greater number of instances, any dissatisfaction caused by these measures will gradually subside as the people become more habituated to the restrictions necessarily imposed on them. Until recently, the exclusion of fire from the State forests was stated by many to be injudicious and oppressive, or at least unnecessary and impracticable. The hard struggle which the Forest Department had to maintain for many years before its views on this subject were generally accepted and understood is now over. Forest grazing, which in many cases is hardly less disastrous than forest fires, has still advocates outside the ranks of the Forest Department. But their opposition will, as in the case of forest fires, disappear when the proper management, in the interests of the general community, of the public forests, and, more especially, of the great grazing lands, becomes better understood. It was stated in the last Annual Review of Forest Administration in India that Conservators would be instructed to submit an annual statement showing for each forest the area grazed over and the number of cattle grazed. It has not, however, as yet been found practicable to prescribe a statement for recording such information in every case.

The information given in the Reports continues, therefore, to be incomplete, and, in some cases, it is vague and unsatisfactory.

Bengal.

The total revenue derived from grazing and the sale of fodder rose from R6,680 to R7,787, almost half of the amount having been raised in the Darjeeling sub-division alone. The rules have continued to work satisfactorily, and rates are unchanged.

North-Western Provinces and Oudh.

The amount realized from grazing (R89,220) fell short by R5,600 of the realizations in 1886-87. In the *Central Circle*, the area closed absolutely to grazing is about one fourth of the whole Reserved forest area. In the *Oudh Circle*, 44 per cent. of the Reserves are closed; and in the *School Circle*, 28 per cent. Throughout most of the Central Circle the grazing is reported to be light, and cases of over-grazing are exceptional. The Oudh Circle, which has a long frontage adjoining a well-populated country, affords grazing to over 400,000 cattle. This gives about one acre per head, though in some parts the average is considerably less. If the figures could be relied on, and if it were the fact that the cattle grazed in the Government forests had to depend on them exclusively for fodder, over-grazing would certainly be established in the case of Pilibhit and Gorakhpur. The figures, however, are not considered accurate

by the Conservator, and there is little doubt that the cattle frequenting the Government forests supplement the grazing found there from the waste lands of the adjoining villages. In the School Circle no cases of over-grazing are reported; but the Conservator mentions that the Saharanpur rules are not working smoothly in all respects.

Punjab.

The following statement shows the areas in square miles closed during the year, as compared with those closed during 1886-87 :—

Closed to all animals.				Closed to camels, sheep, and goats only				Closed to other animals only.			
Throughout the year.		Part of the year		Throughout the year.		Part of the year.		Throughout the year.		Part of the year.	
1886-87.	1887 88	886-87	1887-88	1886-87	1887-88.	1886-87	1887 88	1886 87.	1887-88.	1886-87.	1887-88.
673	971	286	313	407	312	...	62	..	55	...	...

The area totally closed to all animals has increased by 298 square miles, and that closed to all animals for a part of the year only has increased by 27 square miles. There is a decrease of 65 square miles in the area closed throughout the year to browsers, and an increase of 62 square miles to that closed against this class of animals for a part of the year. Fifty-five square miles were closed throughout the year against specified animals.

The total area wholly or partially closed during 1887-88 amounted to 1,720 square miles, or slightly over one third of the total area of forests of all classes administered by the Forest Department; and the proportion to the total area of Government forest and waste-land, available to the people in addition to their own grazing grounds, is, of course, very much smaller.

In some parts of the province the number of cattle kept by the people, over and above their requirements as agriculturists, prevents the temporary closure of areas after felling, and their regeneration is thereby seriously endangered. It seems inevitable that such rights as the people may possess, or such concessions as the Government may feel disposed to accord to them, must be interfered with when parts of their grazing grounds are given away from time to time in grants to settlers; and it is not apparent why it should be more difficult to deal with the grazing question when it is desired to temporarily close a forest area for regeneration, than when the area is to be permanently removed from the use of the present population by being granted away to strangers.

Endeavours have been made to extend the practice of cutting and carrying grass from the closed areas for consumption outside them. This system, which is successfully pursued in some districts, has the great advantage that at any rate the greater part of the crop of grass is utilized, while protection of the young tree-growth is not interfered with. If it could be more generally introduced, it is thought that opposition to the necessary closure of forest and waste land for purposes of regeneration might be appreciably lessened.

Central Provinces.

There was no material extension of the area closed to grazing, which, during the year, amounted to 964 square miles only out of a total (Reserved).

forest area of 20,052 square miles. It would appear, however, that the condition of these Reserves is not such as to admit of the present practice of almost unrestricted grazing, which extends to so considerable a part of their area.

The extent to which the forests were utilized for grazing purposes is shown by the following statement, in which the numbers of animals of the three chief kinds are given separately for the past three years :—

	1885-86.	1886-87.	1887-88.
Buffaloes . . .	406,320	359,011	373,653
Cows and bullocks .	2,390,788	2,402,932	2,337,123
Sheep and goats . .	479,697	494,422	429,534
TOTAL .	3,276,805	3,256,365	3,140,310

These figures show a slight decrease in the number of grazing and browsing animals that frequented the forests.

Lower Burma.

R236 were realized on account of the grazing of 618 head of cattle inside the Reserves; and right-holders grazed 1,935 animals inside Reserves free of charge.

Assam.

The area of the Government waste-lands being very great in comparison to the number of cattle, there is practically no grazing in the State forests.

Coorg.

The revenue derived from grazing fees was R627 in 1887-88, against R368 in 1886-87. The number of ryots' cattle grazing in the Reserved forests is shown to be 12,886, against 21,951 in 1886-87. The question of defining more accurately the rights of the ryots to graze their cattle in forest Reserves, and the necessity for exacting grazing fees generally, has been under the consideration of the Officiating Chief Commissioner.

Ajmere.

On account of the scarcity of fodder during the hot season, extensive grazing was allowed in the forest Reserves. The number of cattle permitted to graze is reported to be 37,504,* as compared with 8,772 during the previous year. During the year under report, 1,245 head of cattle were permitted to graze free of charge, as against 1,183 permitted during the previous year. The grazing dues amounted to R5,604.

Baluchistan.

Very little rain fell in the Sibi district, and, there being less grass in the rakhs than in the previous year, fewer cattle were allowed to graze in them. The permits for grazing in the Sibi rakhs are monthly ones, and the greatest number of head of cattle for which permits existed at any one period was 536.

* Including some cattle admitted just before the close of the year 1886-87, for which grazing fees were realized in the following year.

Andamans.

There is no grazing.

Berar.

The farming of the grazing lands in Buldana, Basim, and Akola was replaced during the year by the system of grazing on passes with the most satisfactory results, both financially and in the contentment of the people.

The numbers registered as paying grazing dues are thus shown :—

Camels.	Buffaloes.	Cows and bullocks.	Sheep and goats	Total for 1887-88.	Total for 1886-87.
54	148,617	916,050	388,698	1,453,419	830,291

This increase in the number of cattle paying dues from 830,291 to 1,453,419 is attributed, in a great measure, to improved registration.

Madras.

The revenue from grazing fees rose from R81,203 during the previous year to R1,05,811 during the year under review, or by 30 per cent.; and it is stated that this increase appears to have been obtained without any heavy additional tax being levied, a very small fee, amounting to not more than one anna per annum per head of cattle, having been charged at first where free grazing had before prevailed. Free grazing is, however, still provided for cattle required for domestic or agricultural purposes where the area of unreserved land available for pasture is small. The important question of the management of grazing in forest areas continues to receive the earnest attention of the Madras Government.

Bombay.

The Bombay Government has under consideration the question of grazing in the State forests, and hopes that the defects which have been brought to notice may soon be remedied. At present it would appear that the majority of the Reserved forests are still open to grazing and that considerable portions are even open to the grazing of sheep and goats, though the fact cannot be denied that this is incompatible with the growth of forest. It seems, moreover, that no proper system has as yet been generally introduced, according to which forest areas are closed for reproduction against grazing of any kind and are open only when they have outgrown danger.

The question of free-grazing, when not awarded as a right, would also appear to demand further and serious consideration; for the value of grass removed free of cost and of free-grazing permitted under privileges granted by the Government of Bombay is stated to amount to a considerable sum in the Northern Circle alone. This is a serious sacrifice of State Revenue, and it is, moreover, questionable whether the agricultural condition of the country derives a corresponding benefit.

IV.—Natural Reproduction.

It was pointed out in paragraph 62 of the Review of Forest Administration for 1885-86 that, in many cases, the subject of "Natural Reproduction"

was dealt with in an unsatisfactory manner in the Reports of Conservators of Forest Circles.

This defect, it is noticed, still prevails. It is not always even explained whether reproduction was good or bad, and it is seldom attempted to explain what the determining conditions were which led to an unfavourable or a favourable result. The attention of Conservators is now again called to this omission with a view to the defect being remedied.

The forests in India occupy vast areas which yield, as a rule, a very small revenue compared with their size. It is, therefore, by means of self-sown seedlings alone that they can be maintained and improved. In most climates natural reproduction is so abundant wherever sufficient protection is afforded to the forests that exceptions to the general rule need only be noticed, and the causes, if possible, explained with a view to their removal where this is practicable.

Bengal.

The record of observations shows that regeneration by means of natural reproduction has generally succeeded well. Favourable accounts were received from all the subdivisions, especially in regard to the reproduction of sâl. Under a system of improved fire-protection, the grass is gradually disappearing and giving place to healthy sâl seedlings, which in a a few years will form thickets and suppress the grass. The gradual afforestation of savannah land by the help of *Mucaranga denticulata* conveys convincing proof of the benefits derived from continuous protection. The rapid growth of bamboos in fire-protected forests is said to interfere with that of teak poles. This circumstance has attracted attention also in Burma, and involves an important question which should be carefully enquired into by the local officers.

North-Western Provinces and Oudh.

The Reports do not contain much information regarding the results of previous systematic management and protection, and the improvement of the growing crop that has resulted therefrom; but the impulse given to natural reproduction is, in general, understood to have been satisfactory, and there is no reason to doubt that the condition of the forests continues to improve under the present treatment. In the *Central Circle* sâl is stated to have seeded below the average. The progress made in the general condition of the Jhánsi, Lalitpur, and Bánda forests is satisfactory, and proves the utility of the measures which have been taken to preserve these village jungles from destruction. In the *Oudh Circle*, natural production is generally very good save in exceptional tracts, where the requirements of adjoining villages press somewhat severely on the forests. The improvement fellings in Kheri and Gorakhpur are said to have had a beneficial effect on the young growth. The character of the season as regards seed-production in the *School Circle* is not specified, though it is remarked that in Jaunsár the conifers failed and the oaks seeded well.

Punjab.

The remarks contained in the Annual Forest Report regarding reproduction are generally satisfactory, and do not call for any special remark, with the exception of the interesting account given of the natural reproduction of forests in the parched unirrigated plains by means of root-suckers. These observations are of very great importance in connection with the treatment of the tree-growth in the dry plains of the Punjab.

Central Provinces.

It is stated that there is little specially worth recording that has not already been set forth in the Reports for previous years. Favourable reports continue to be received in respect of almost all forests under strict protection, and already recorded facts point clearly to the good results that may be calculated on with certainty under this head.

Lower Burma.

The progress made in clearing the plantations of bamboos, soft woods, and creepers has been satisfactory, and attention has been given to the extension of these operations by means of the regular annual girdling parties, to the great advantage of natural reproduction and advance growth in the open forest.

Assam.

The regeneration in the forests of Assam is more than sufficient everywhere. The climate, generally speaking, is so favourable to all vegetation, that even if exploitation were largely increased it would not soon interfere with the regeneration of the forests, and sâl, the most valuable tree in the province, produces young and healthy seedlings in abundance.

Coorg.

The Forest Officer reports:—"The reproduction of teak and other "good kinds continues to be poor in the bulk of the forests, but in those portions "where forest weedings have taken place an improvement is already visible, "and the plants that had already established themselves under partial cover are "answering well to the relief given them by the weedings. These weedings, if "made complete, open the canopy very considerably, for in the greater portion of "the forests two thirds of the canopy is made up of inferior species."

Ajmere-Merwara.

Owing to the favourable rains, natural reproduction is said to have been good in spite of excessive grazing at the beginning of the year.

Baluchistan.

The uncertainty of the climate in Baluchistan renders regeneration very precarious under the best of circumstances, and it becomes impossible where grazing is permitted, or, worse still, where forest fires are of common occurrence.

The natural reproduction of the principal indigenous trees, such as the juniper and the pistachio, is being carefully studied and experimented on. In order to watch more carefully the effect of protection during a series of years on the reproduction of the juniper, two selected blocks of forest are being closed to sheep and goats.

Andamans.

The most difficult problem with which Forest management in mixed tropical forests has to deal is how to effect the reproduction of the most valuable species; and it is probably harder to direct and guide reproduction in forests where the vegetation is very luxurious and rich, than it is to obtain satisfactory results under the opposite extremes. Nevertheless, if a sufficient market be once assured, so that a regular income can be counted upon, the success which has

attended the artificial reproduction of padouk shows that this means of assisting natural reproduction may be resorted to on a larger scale.

Further observation has not led the Forest Officer to modify the views expressed in last year's Report with regard to the absence of the natural reproduction of padouk. At the close of the year small clearings were made round seed-bearing padouk trees, with a view to these clearings being regenerated by self-sown padouk trees during the rains of 1888. The area operated on amounts to about 7 acres, and is in the vicinity of the existing plantations.

Berar.

The Conservator states—"The reports about natural reproduction are not so glowing as in previous years, and the impression is fast gaining ground that what used to be reported as plentiful natural reproduction was only the rains' growth, which is always apparent up to a certain time of the year, but which *invariably* dies down in the hot weather, unless certain conditions of protection and moisture be present."

It is, however, hoped that this represents a too pessimist view of the case. The subject will be noticed more fully in the next Annual Report. Many of the forest estates in Berar have been ruined by mismanagement in former years, and this fact must be weighed in considering the question of their closure against grazing. Experience has proved that it is dangerous to utilize them by the introduction into the plains' Reserves of the so-called light grazing. It is only four years since the Reserves in the plains' districts were thrown open by the Conservator to limited pasture, but their re-closure would already seem to present difficulties. It may happen that the requirements for grazing grounds may decrease, as the habits of life of the population change in consequence of extended cultivation and the growth of fodder crops, but till this occurs, or at least until a tendency shows itself in this direction, the areas set apart for grazing must be maintained apart from timber reserves. It may be advisable even at this stage, in order to economize the existing fodder resources, to close portions of the permanent grazing grounds for pasture and only to permit the removal of fodder by hand. The Reserves also may in this way be made to yield considerable quantities of cut grass.

Madras.

The Conservators speak now with the experience of several years and of a large area of forests under varying degrees of protection, and they report that, given protection from fire and cattle, the natural reproduction is sufficiently strong to re-clothe the ground. The rapidity of growth, of course, depends greatly on soil and rainfall; but, even on the dryest and barest hill-sides, it seems to be only a matter of time. The essential is complete protection, and the Conservators give numerous specific instances of successful young growth where this has been obtained. The most valuable trees—sâl, teak, *Hardwickia*, *Pterocarpus*, and satinwood, as also blue-gum and casuarina—are reported to be also the most vigorous reproducers, both from coppice and from seed. In regard to the latter, it would be interesting to learn how far the time of the fall of the seed affects its struggle for existence. Complaint is made in some cases that the first growth is a dense scrub of elephant-grass, bushes, or thorny creepers, and fears are expressed that this may kill out the young seedlings. This requires to be watched, but in the dryer districts, at any rate, some such covering appears necessary to protect the young seedlings from the drought

of the hot weather; and, though such protection may be unnecessary for the moister forests, it seems probable that the young trees will push through it in time, while the cost of removing it would probably be prohibitive.

Bombay.

It is stated that in the Northern Circle natural reproduction has continued its course of progressive improvement where protection has been effective, and that a very remarkable change is spreading over the face of the country which is included within the operations of the Forest Department. After an absence of seven or eight years, the Conservator revisited the higher slopes of the Patna Reserve about the Outram Ghât, in the Chalisgáon range of the Khándesh district, and was surprised to see the improvement the forests had made. Seedling trees of teak, blackwood, and other valuable timbers are to be seen with clean straight stems intermixed with bamboos, &c., covering ground that was very much bare before. The Sátpuda forests of Khándesh have come on wonderfully in parts of the Sáva and Chopda tálukas; and the sámbhar and other wild animals have returned to the haunts of their ancestors, from whence the latter had been banished for years by the desolating axe and the supplementary jungle fires.

In the Southern Circle, the Conservator states, reproduction has not improved, and cannot improve until means are found to prevent incendiarism.

In Sind reproduction is naturally slow for want of water. The Reserves are difficult to irrigate, and it has not yet been found possible to provide the funds necessary for preparing canals. Efforts are being made to irrigate the forest lands wherever this is practicable.

V.—Artificial Reproduction of Forests.

General.

The area of plantations and cultural operations undertaken during the year is exhibited in the following table :—

AREA, IN ACRES

Provinces.	At commencement of the year.				Added during the year				Excluded during the year.				Balance at close of the year.			
	Regular Plantations.	Cultural Operations	Taungyas.	Total	Regular Plantations.	Cultural Operations.	Taungyas.	Total.	Regular Plantations	Cultural Operations.	Taungyas	Total.	Regular Plantations	Cultural Operations.	Taungyas.	Total.
Bengal	2,460	950	..	3,410	302	7		309	8	..	..	8	2,754	957	...	3,711
North-Western Provinces and Oudh	2,522	2,975	...	5,497	250	441	..	691	...	92	...	92	2,772	3,324	...	6,096
Punjab	13,804	4,194	...	17,998	523	2,097	...	2,620	321	*958	...	1,279	14,006	5,333	.	19,339
Burma (Lower)	3,828	3,321	11,659	18,808	19	...	†1,796	1,815	...	...	..	...	3,847	3,321	13,455	20,623
Assam	1,389	106	...	1,495	..	35	...	35	...	...	...	..	1,389	141	...	1,530
Coorg	1,138	10	...	1,148	209	...	...	209	5	...	...	5	1,342	10	..	1,352
Ajmere	410	22	...	432	19	...	...	19	...	...	...	..	429	22	...	451
Baluchistan	51	43	..	94	...	...	...	..	...	...	...	.	51	43	...	94
Andamans	43	..	...	43	16	...	...	16	...	...	...	..	59	...	..	59
TOTAL	25,645	11,621	11,659	48,925	1,338	2,580	1,796	5,714	334	1,050	...	1,384	26,649	13,151	13,455	53,255
Berar	1,459	8,493	...	9,952	...	2,383	...	2,383	..	244	...	244	1,459	10,632	..	12,091
TOTAL, BENGAL PRESIDENCY	27,104	20,114	11,659	58,877	1,338	4,963	1 796	8,097	334	1,294	..	1,628	28,108	23,783	13,455	65,346
Madras	18,209	3,850	‡31,563	53,622	802	489	‡1 061	2,352	..	...	‡26	26	19,011	4,339	‡32,598	55,948
Bombay	6,266	150,483	...	156,749	§679	35,799	...	36,478	126	¶18,375	.	18,501	6,819	167,907	...	174,726
GRAND TOTAL	51,579	174,447	43,222	269,248	2,819	41,251	2,857	46,927	460	19,669	26	20,155	53,938	196,029	46,053	296 020

* Includes 2 acres made up of fractions shown as closing balance of 1886-87 and omitted in opening balance of 1887-88.
† Includes 20 acres omitted in last year's return.
‡ These are *Topes*.
§ 163 acres of this were wrongly entered under "Cultural Operations" in previous year's return (Southern Circle)
¶ Includes 163 acres "Regular Plantations" wrongly entered under Cultural Operations in last year s return (Southern Circle).

Bengal.

Artificial reproduction has received considerable notice. Regular plantations were extended by 294 acres and cultural operations by 7 acres, the total expenditure incurred amounting to R7,283, against R7,460 in 1886-87. These developments were again confined almost exclusively to the Darjeeling and Chittagong Divisions.

The areas that can be profitably dealt with in Bengal by arboricultural operations are small, if compared with the large forest areas requiring attention. The introduction of mahogany seems to be considerably interfered with by some insect. Reports to the same effect have reached the Government of India from Burma, whereas considerable progress is recorded in the successful introduction of the mahogany tree into the Madras Presidency.

North-Western Provinces and Oudh.

Regular plantations were extended by 250 acres and cultural operations were undertaken over an area of 349 acres, at a cost of R8,093. The chief planting work is in Jaunsár, where blank areas are being stocked with deodar. The other plantation experiments were not very successful, and economy under this head is desirable.

Punjab.

The area of the regular plantations was increased by 523 acres and under cultural operations by 2,097 acres, but 321 acres of the former and 958 acres of the latter have to be struck off owing to failures, loss by erosion, or errors in former returns. The net increase during the year was, therefore, 202 acres of regular plantations and 1,139 acres under cultural operations: R38,440 were expended during the year on these operations.

Central Provinces.

Artificial reproduction is only resorted to in the Central Provinces to a very small extent, with a view to improving the composition of some tracts by introducing valuable species of trees here and there. A good number of teak and mango trees were planted out in pits and a few acres sown with teak.

Lower Burma.

The area of regular plantations was increased by 19 acres, and that of teak taungyas was brought, by the addition of 1,796 acres, to the considerable area of 13,455 acres, of which 3,824 acres belong to the Tenasserim Circle and 9,631 to Pegu. The results of these operations show, year after year, a greater measure of success in the Pegu than in the Tenasserim Circle; and in the year under review the number of plants per acre averages in the former Circle upwards of 1,000—a result which would be satisfactory in any regular plantation.

Upper Burma.

Some nurseries were formed at selected spots in the hills. Experiments were made in the introduction of some of the more useful Himalayan species of forest trees and English fruit-trees.

Assam.

It is considered that, for the present, no attempts on a large scale should be made to extend plantations in Assam. The important rubber plantation at Charduar, of which the stocked area is now 1,043 acres, was maintained. Cultural operations were carried on over an area of 141 acres, of which 35 acres are shown as added during the year.

At the same time the efforts made to induce people who live by *jhum* cultivation to sow or plant trees in their fields before abandoning them were continued, but with very little success. In all, 813 acres of such lands were sown or planted, but this area does not appear in the annual statement.

Coorg.

The areas newly planted were:—teak 96 acres, sandal 36 acres, fuel 10 acres; an area of 67 acres of bamboo-seeded land was also sown with teak, but the result was not successful, owing, it is said, to an untimely break in the monsoon. The sandal plantations in South Coorg are reported to have been much injured by deer.

Ajmere.

Planting operations on a small scale were successfully continued, 19 acres being added to the area under regular plantations.

Baluchistan.

No addition to the area under plantations is shown, but it is stated that work was carried on at three places and a considerable area of swampy ground trenched and planted with willow cuttings.

Andamans.

An area of 16 acres adjacent to the older plantations was cleared and planted with alternate rows of teak and padouk.

Berar.

Planting work was continued in the Pathrot Reserve, and bamboos and fruit-trees were put out over an area of 50 acres.

Broadcast sowings were continued in all the districts, but with indifferent results.

Madras.

Artificial reproduction was not satisfactory, and though in particular places plantations—such as those of casuarina on the coast, or blue-gum on the hills, or teak at Nilambur—may pay, as a general rule they appear to be most unsuccessful, and anything in the shape of broadcast sowing appears to be absolutely useless.

Regular plantations were increased by 802 acres, and cultural operations by 489 acres. The topes, of which there were 1,645, covering an area of 32,598 acres, were all maintained.

Bombay.

The Conservator, Northern Circle, reports that artificial plantations are required to be made in respect of considerable tracts of denuded lands, which are necessary to be stocked with growing timber as soon as possible, and which, for one cause or another, cannot be effected by other means as quickly and as satisfactorily as desired; also when the introduction or multiplication of certain kinds of trees are wanted to the exclusion of other kinds, &c. The usual methods of planting trees were followed during the year in all the divisions of the Northern Circle, and the results have been as profitable as could be expected.

The Conservator, Southern Circle, states that, on the whole, plantations are not a great success, and is inclined to think that the sums they cost would be more usefully spent in sowing seeds broadcast in open scrub-jungle, and in simply protecting existing jungles.

The Conservator, Sind, says that nothing was done beyond sowing a few maunds of babul seed and putting in some tali cuttings; no new works were taken in hand; the old gardens and plantations were kept up.

No facts deserving special notice have been recorded. The entries showing the areas taken in hand or added during the year are, in the absence of further explanation, not understood.

VI.—Thinnings and other Improvement Fellings.

General.

The amount of work done under this heading would appear to be exceedingly small and entirely inadequate. The reports on the subject in most of the Forest Circles are meagre and insufficient.

Bengal.

There has been little work under this head except as regards cutting of creepers, which was carried out over 21,039 acres in all, of which 15,352 acres were in the Jalpaiguri and Buxa subdivisions. Improvement thinnings and cleanings were carried out over certain areas in the Kurseong and Khorda subdivisions.

North-Western Provinces and Oudh.

In the *Central Circle*, climbers were cut in the three submontane divisions over an area of 18 square miles at a cost of R47-12-0 per square mile. In the *Oudh Circle*, climbers were cut in Bhira and in Kheri over an area of about 9,000 acres. Thinnings were carried out in Gonda over an area of 170 acres, and some 200 acres in Gorakhpur were cleaned. In the *School Circle*, climbers were cut over 4,184 acres at R61 per square mile. The inferior species were killed by ringing over an area of 1,355 acres.

Punjab.

Inferior species or climbers were cut over an area of 407 acres, and 22,538 inferior trees, which were found to interfere with the growth of the deodar, were killed by ringing.

Central Provinces.

Improvement fellings, by cutting back badly-grown trees, were made over an area of 455 acres; climbers were cut over an area of 15,740 acres.

In several districts the regular establishment has taken an active part in the cutting out of creepers and a certain amount of work has thus been done, but, being carried out by each individual as opportunity occurs, it is not possible to define the extent of the work thus accomplished.

Lower Burma.

In the Tenasserim Circle, 1,714 acres of teak plantations were cleaned. The Prome and other plantations in Pegu were similarly cleaned, and creepers were cut in plantations and *taungyas* over an area of nearly 7,000 acres. Generally this work of clearing old taungyas, which requires the exercise of care, judgment, and intelligence, has been fairly well carried out. The girdling parties in the Thônzè, Kôn Bilin, Kadin Bilin, and Môkka forests also cut creepers on teak trees wherever met with, and suppressed trees were set free by girdling or felling trees of worthless species.

Assam.

Systematic cutting of climbers in the sâl forests was only carried out in the Kamrup Division, where 8,280 acres were gone over at a total expenditure of R320, or about R26 per square mile.

Coorg.

Creepers were cut and the growth cleaned over an area of 1,418 acres at a cost of 2 annas 9 pies per acre. Although the work was not done as thoroughly as it might have been, it was an improvement on former years.

Ajmere.

Improvement fellings were made in three blocks over an area of 40 acres.

Baluchistan.

Nothing is recorded under this heading.

Andamans.

The area planted in 1887 was cleaned at a cost of R102.

Berar.

Nothing is recorded under this heading.

Madras.

In the Southern Circle, R560 were expended in forming compartments and in eradicating prickly-pear from the Reserves. In the Northern Circle, creeper-cutting and the cleaning of plantations were carried out to a small extent.

Bombay.

In the Northern Circle, the Conservator reports that improvement fellings, creeper-cutting, &c., are generally carried out by Forest Guards. The eradication and removal of the prickly-pear, *Opuntia dillenii*, which forms one of the chief obstructions to the growth of ligneous vegetation in the Reserved forests, is also undertaken by Forest Guards when the growth is young and in small quantities; but in some of the Reserves where the prickly-pear is of considerable age and has extended greatly, it becomes necessary to utilize hired labour for its extraction. Forest Guards are required to cut creepers and climbers in the forests of their beats; but the day has not arrived yet when the Guards can be employed to undertake more scientific operations in the removal of inferior species in view of the improvement to be given thereby to the forests.

In the Southern Circle, all inferior species not saleable as firewood were girdled and left to die on the *coupes* exploited. Nothing is recorded as having been done under this heading in Sind.

VII.—Communications and Buildings.

Bengal.

The following is a summary of the works executed :—

New lines opened.		Existing lines repaired.		Cost	
Export roads.	Inspection paths.	Export roads.	Inspection paths.	New works.	Repairs.
Miles.	Miles.	Miles.	Miles.	R	R
149·1	28·7	235·1	258·1	7,396	7,898

The work done on buildings cost in all ₹11,634, the chief new works being—inspection bungalows, one completed and three built; range head-quarters, one completed, two built, and three commenced; elephant shed, one; charcoal shed, one; offices, two completed; range officers' inspection huts, seven built; guards' huts, 50 built.

North-Western Provinces and Oudh.

	Roads and bridges.	Buildings.	Other works.	Total.	Percentage on gross expenditure of the year.
	₹	₹	₹	₹	₹
Total in 1887-88 . .	46,581	43,147	2,372	92,100	11
Total in 1886-87 . .	47,067	30,278	4,422	81,767	9
Increase or Decrease in 1887-88.	−486	+12,869	−2,050	+10,333	+2

The expenditure in the Central Circle was large, but it is stated that the extension of the area worked for timber in Kumaun and Garhwal has made the construction of new roads and of houses for the controlling and subordinate staff unavoidable. In the Oudh Circle additional forest roads in the Gorakhpur forests and also in the trans-Sarda portions of the Kheri forests will probably be required. In the School Circle the expenditure on buildings was large.

Punjab.

The following amounts were expended during the year on roads and bridges, *viz.*:—

	R
On construction	3,156
On repairs	3,354
TOTAL .	6,510

In the hills, 23 miles of riding roads and 23 miles of inspection paths were made, while 144 miles of riding roads and 138 miles of inspection paths were repaired. In the plains, 3 miles of bridle-paths were made and 7 miles were repaired.

The expenditure on construction and repairs of buildings was as follows, *viz.*:—

	R
On construction	4,639
On repairs	3,399
TOTAL .	8,038

The greater part of this money was spent in Chamba and Kulu. A new house was built for the Kulu Forest Officer; four rest-houses were constructed in Chamba.

Central Provinces.

The road in the Moharli range was widened at a cost of ₹116, and in Betul, in extension of previous work, 12 miles of road were made at a cost of ₹533-9-3.

The outlay necessary on the repair of forest roads was small, amounting only to ₹1,440.

On the construction of subordinates' quarters there was an outlay of R220, and R2,491 were spent on the repairs of buildings, rest-houses, and subordinates' quarters.

There was a further outlay of R140 in sinking a well. On the repair of tanks and kutcha wells to supply water in the forests R179 were spent.

Lower Burma.

In the *Tenasserim Circle* R1,166 were expended on the construction of an elephant-shed, and small amounts on the repairs of existing buildings and on the construction of temporary sheds.

In the *Pegu Circle* a small amount was expended on removing obstructions in streams used for timber-floating and on minor repairs of roads. A bungalow and office at Pegu for the Revenue Overseer cost R1,060; the balance of the expenditure was for repairs of buildings at timber depôts and Forest Officers' and Subordinates' quarters.

Upper Burma.

In order to provide accommodation for offices and shelter for officers themselves, buildings with substantial posts and frame-work have been constructed wherever required. For the present they have been thatched and walled in with matting. Later on, shingles and boarded walls can be substituted, and the houses will fulfil all requirements. The total expenditure under buildings was R7,560. Nothing was expended on roads.

Assam.

The most of the road-work was done in the Garo Hills on the Damra-Dambu cart-road. The other divisions in which road-work has to be done are Kamrup, Darrang, Sibsagar, Lakhimpur, and Cachar. The total expenditure of the Department during the year on road-work came to R3,490, as compared with R3,502 spent in the previous year.

All the larger Forest Department buildings were also re-transferred from the Public Works Department to the Forest Department in the year.

Nevertheless, the expenditure on buildings has, in spite of this, been somewhat less in the year under report; it was R6,293-2-11, as compared with R8,075-14-5 spent in the previous year. No new large buildings were erected, but considerable repairs had become necessary to several of the old buildings.

Coorg.

On the Hunsur-Nagaraholay road about 6 miles were traced and roughly formed. The amount spent on this road was R1,018. A new trace, about 4 miles, was made and opened through the Hatgat and Nalkeri forests, to tap the western portions of these forests, at a cost of R49. A timber bridge was erected on the Tittimatti-Maldare road at a cost of R43. Petty repairs and improvements were made on the other cart-tracks at a cost of R208. The total expenditure on roads was R1,320.

The godowns at Kootompolle were completed at a cost of R274. A new hut was built at Kalhalla at a cost of R129. A tiled house was built at Herikeri for the use of the Forester in charge, and cost R140. The tank bund at Murkal was enlarged at a cost of R153. Petty repairs were effected to other buildings. The total expenditure on buildings amounted to R1,148.

Ajmere.

A new road, 8 miles long, was constructed to connect the Beliawas and Amner forests. Other paths were kept in good order. A chauki was constructed during the year at Rajgarh; other chaukis were kept in thorough repair.

The expenditure was as follows:—

	₹
Roads and bridges	96
Buildings	119
Other works	247
TOTAL	462

Baluchistan.

Six roads, 20 feet broad and of a total length of 3 miles, were cleared in the Sibi rakhs at a cost of ₹47. A house for the accommodation of the malies was built in the Quetta nursery for ₹170, and the depôt peon's hut was repaired.

Andamans.

Nothing is recorded under this heading.

Berar.

The expenditure of the year, ₹19,184, has been the highest on record, and ₹18,817 of it were spent in the Melghat, where 23 miles of road were added to the mileage of forest roads, which now amounts to 132 miles.

Madras.

In the Southern Circle the expenditure was ₹32,488, as compared with ₹44,125 sanctioned. The short expenditure was due to the establishment being employed on selection, demarcation, and settlement of Reserves—all more important works at present than roads and buildings. As it is, however, ₹6,499 more were spent than during the year before.

Description of work.	Cost during the year
	₹
Road repairs	4,610
New roads	9,114
Building repairs	5,593
New buildings	11,714
Other work repairs	778
New other works	379
TOTAL	32,488

In the Northern Circle ₹6,879 were spent on roads and bridges (new constructions and repairs), ₹14,604 on buildings (new constructions and repairs), and ₹883 on other works.

Bombay.

The expenditure on roads, buildings, and similar works during the year was as follows:—

	Northern Circle.	Southern Circle.	Sind.	Total.
	R	*R*	*R*	*R*
Roads and bridges	258	1,421	...	1,679
Buildings	2,406	3,051	357	5,814
Other works	1,491	819	50	2,360
TOTAL .	4,155	5,291	407	9,853

VIII.—Experiments and Exotic Trees.

Bengal.

The mahogany seed received during the year from the Royal Botanic Gardens, Seebpore, failed to germinate in all cases.

The results of the other experiments made are thus reported:—

In the Kurseong subdivision one clump of wabo bamboo is doing well, the stems being 5 inches in diameter. Three teak trees sown from indigenous seed in May 1880 have now a girth of 16¾, 18½, and 21½, inches respectively; *Broussonetia papyrifera* and *Pithecolobium Saman* are doing well; but the *Divi-divi* put out in the forests are all dead.

In the Orrissa Division the mahogany plants are doing well.

North-Western Provinces and Oudh.

In the *Central Circle* the observations in connection with the growth of sâl have been extended, and there are six plots in Kumaun, eight in Garhwâl, and four in the Ganges Divisions—the latter marked off this year.

Twenty-four new kinds of apples and a cultivated blackberry from England have been put down at Ranikhet; gum and China dwarf-palm seeds, and sweet chestnuts, saved at Ranikhet, have been sown. The yellow sneezewood plants are doing well.

In the *Oudh Circle* the mahogany seedlings, which were obtained from the Saharanpur gardens and planted in the Bahramghât depôt yard, are doing well, also the few *Eucalyptus* trees in Kheri.

Punjab.

Considerable attention was paid to experiments with exotic trees; but the results attained do not appear generally to have much importance. The following facts were noticed. The hedge plant, *Paliurus aculeatus*, is evidently unsuited to the hills of this part of India, for its growth is far too slow to permit of its being of any practical use. The growth of the olive from the south of France is greatly retarded by a blight which has the appearance of "sticky cotton wool," and has attacked the leaves and shoots for the last three years. The Spanish chestnut continues to do well in Bashahr. There are now 94 trees of various sizes up to 32 feet high and 4½ feet in girth at Kilba and Nachár. This species continues to grow well at Manáli in Kúlu. Five trees at Kálatop have not flowered, as they suffer from frost. The salt-bush plants in the carob plantation at Lahore are thoroughly established and seed profusely. They are regularly irrigated. This species grows well in the Government

garden at Mooltan, where it has the benefit of shade and water; but it fails in dry localities. The bamboos at Changa Manga have all been uprooted by pigs.

Central Provinces.

Nothing is recorded except that some mahogany trees put out the previous year, in the Hathibari Reserve, are thriving and promise to do well.

Lower Burma.

The Conservator of the Tenasserim Circle reports :—

Cultivation of Para India-rubber (Hevea Braziliensis) near Mergui.—No casualties occurred among the large *Hevea* trees, which are 50 in number.

During the year 2,802 plants from the nursery were successfully set out in the main plantation, and 8,430 seedlings raised from seed obtained from the large trees, thereby increasing the stock of seedlings in the nurseries.

An area of about 4 acres of tree-forest was also partly cleared before the close of the year for the reception of a large number of *Hevea* transplants.

A small supply of seed was received from the Royal Botanical Gardens, Ceylon, but in a bad condition, and the entire quantity failed.

Cultivation of Castilloa elastica in the plantation near Mergui.—Of the 86 plants on hand at the beginning of the year, 17 died from injuries caused by the attacks of white-ants and deer. The two older trees of 1879 and four trees of 1884 continue to do well.

Cultivation of Ceara (Manihot glaziovii).—Fifty-three additional casualties from the attacks of white-ants took place among the Ceara trees, the propagation of which has been discontinued since 1885.

Cultivation of Ficus macrophylla in the Mergui plantation.—Of the 99 plants on hand, 14 died during the year by the rotting of the roots, but 15 cuttings were successfully put out.

Cultivation of Mahogany.—Casualties took place among the Mahogany and Rain trees.

Cultivation of other species at the Mergui plantation.—No casualties were reported among the other species under cultivation, which are represented by 230 kyekpaung, 434 Manilla hemp (*Musa textilis*), 57 akyaw (*Aquillaria agaloochum*), and 80 talaingsôk.

Experimental cultivation undertaken with the provincial grant.—The Liberian Coffee trees on the area assigned to experiments undertaken with the provincial grant continued to thrive throughout the year, and yielded a crop of 109 viss of bean coffee.

Further casualties took place among the Arabian Coffee trees They continue weak and sickly in appearance. Twenty plants were also given away.

One hundred and twenty-seven Cocoa seedlings were transplanted from nurseries ; of these, 77 were destroyed by white-ants.

From eight Vanilla pods collected, 175 additional seedlings were raised, but of these a few have since died.

The number of Vanilla plants on hand was increased by slips from two to 284, all of which are flourishing.

The Tea plants have been reduced by casualties to 172 ; but no casualties took place among the Cardamom plants, of which there are four on hand.

Preparations were made to continue the cultivation of Cardamom, two seers of best Mysore seed having been received.

Experimental cultivation of Mahogany at Amherst and Moulmein.—There

were further casualties from attacks of the borer at Amherst, thereby reducing the number of trees in the plantation to nine, of which only two exhibit any signs of vigour.

From seed received from the Royal Botanical Gardens, Calcutta, 146 seedlings were raised, of which six were despatched to the Sinzwè Reserve, West Salween Division.

The Conservator of the Pegu Circle reports:—

Cultivation of Mahogany.—Only 64 plants are alive in the Prome Division, although 32 fresh plants were put out. They do not appear to thrive here.

The total number of plants in the Tharrawaddy garden has decreased to 590; these appear healthy, but in common with other exotics and even indigenous trees remain stunted and branch out close to the ground.

Cultivation of Ficus elastica and Mysuriensis.—The plants are doing well, but all attempts to reproduce from cuttings have failed.

Cultivation of Ceara.—Five hundred and fifty plants remain in the Tharrawaddy garden, and 90 at Magayi; the others succumbed to the heat last hot season.

Cultivation of Vanilla.—The vanillerie at Magayi now contains 1,310 flourishing plants; 215 flowered during the year, producing 70 pods. These appear, however, to possess little or no scent.

Cultivation of Morus multicaulis.—The villagers will have nothing to do with this. They state it attracts rats, which destroy the roots wholesale, while the common mulberry is left untouched.

Nothing was done to the cinchona. An attempt was made to grow fir seedlings in the proposed station, but all died. The tea and coffee were weeded.

All the exotics growing in the Tharrawaddy forest garden appear healthy, except *Pomaderris elliptica* and *Tristania conferta*. None of the plants really do well—the soil is too uncongenial. The Ceara is very liable to be blown down when about 20 feet high, and is found to be decayed just above the roots, and the dead wood to be full of white-ants, probably an effect not the cause of death.

Upper Burma.

The Conservator reports:—

Nurseries have been laid out at both Bernardmyo (6,500 feet) and Mogok (4,100 feet), and many Himalayan species have been introduced.

Pinus longifolia sown at Mogok has succeeded perfectly, and the beds show unbroken lines of healthy plants.

Deodar has germinated freely at Bernardmyo, and some 700 plants were flourishing when the rains set in.

Abies Smithiana has only partially succeeded.

Abies Webbiana has germinated well, but the plants do not appear very healthy.

Pinus Gerardiana.—A few plants only have been raised, but these appear robust.

Pinus excelsa has not come up as well as might have been expected, but there is a fair number of plants.

A few Walnut plants only have been raised. A large number of *Eucalyptus* seeds have germinated; the species are not known. *Acer pictum, villosum, caudatum,* and *cæsium* have all been sown, but as yet they have not germinated. *Celtis caucasica, Carpinus viminea,* and *Melia azedarach* have also succeeded.

Seeds of other kinds have been sown, but have for the most part failed. A few plants of the indigenous Oaks, Chestnuts, &c., are being raised for observation and study.

Five hundred Apple, Pear, Peach, Apricot, Plum, and Nectarine grafts were obtained from the Ranikhet nursery. Of these almost all the stocks bore the journey and took root, but many of the grafts, especially of stone fruit, had died in transit One hundred and forty-nine, chiefly Apples and Pears, have taken and may be considered established.

Assam.

Nothing is recorded with regard to experiments or exotics.

Coorg.

No new exotics have been tried during the year. The *Frenela rhomboidea* and *Cupressus torulosa* mentioned last year appear to adapt themselves to the Mercara climate very well, and make vigorous growth.

Ajmere.

In the Sendra nursery, Chir, Date, *Eucalyptus*, and Sandal seed were sown and have very successfully germinated.

Sixty-seven plants of *Eucalyptus viminalis* and *Eucalyptus rostrata* are now flourishing.

Sixty-two plants of *Grevillea robusta* in the Pushkar nursery are ready for planting out. Some of these have reached a height of 2 feet.

Thirty-six plants of *Pinus longifolia* are now alive. Some of these are 6 inches in height.

Three hundred plants of *Terminàlia Arjuna* are thriving in the Pushkar nursery and 140 in the Mohwa Bir nursery; all these are ready to be planted out.

One hundred and eighteen plants of *Santalum album* are ready to be put out. The greater number of these exceed one foot in height.

One hundred Sain plants in the Bir nursery are progressing favourably. Some are two feet in height.

Eighty plants of Bahera have successfully germinated and are doing well.

Twenty-five Bombay Plantains and 102 fruit-trees of different sorts were put out in the Sendra nursery. Of these, 111 are thriving.

Baluchistan.

Pinus longifolia seedlings at Quetta, if protected during their first two winters, do very well; some of the older plants, which were transplanted, are 4 feet 8 inches high and are developing into strong and healthy trees. The Pistachio seedlings are doing very well; some grew to a height of 3 feet 4 inches in their first year. The Pistachio is evidently the tree which should be most extensively propagated, being so well suited to the country; it grows naturally on the most rocky ground, and yields an excellent firewood.

Fraxinus Moorcroftiana.—A small quantity of seed of this species was sown in March, and about 30 seedlings have come up.

Several species of *Eucalyptus* have been sown during the past three years at Quetta, but, although the seed germinated and the plants grew fairly well, they have always died down during the first frosts. Some seed obtained from Abbottabad is now being tried and has germinated very well.

Ten seers of Chestnuts (*Æsculus indica*) from Abbottabad were sown in

March, but a great number of them were bad when they arrived. Thirteen seedlings have come up and are growing very quickly.

Seed of *Platanus orientalis*, also obtained from Abbottabad, was sown in March and a few have germinated. This is one of the trees that does very well in Quetta, but hitherto has only been raised there from slips.

Of other species tried, the most important is an Oak, which grows on dry, hot hills in Persia; some seed of this was obtained from Bushire, and about 30 young Oaks have come up. Seeds of *Cupressus sempervirens*, *Acer indica*, and *Cytisus laburnum* have germinated, while a Chestnut and some Filberts have come up from seed brought from England.

Andamans.

No experiments have been recorded.

Berar.

The experiments in the cultivation of Bamboos and fruit-trees, which have been already noted under the heading of artificial reproduction, were continued in the Pathrot Reserve.

Madras.

The results of the experiments with exotics have been fully recorded. Germination from the seed of Date fruits purchased in the bazaar was good, and the plants appear to stand transplanting well; in both these respects, they are fully equal to the specially-imported seed and offsets. The Dates are reported to do better on the sandy soil of the east than in the wet climate of the west coast. Nothing is said about fruiting, and the formation of plantations on an extended scale was postponed to the present year. Wherever they have had a good soil and moist climate, *Mahoganies* have done well: in Nilambur, a tree, 14 years old, is 71 feet high and 46 inches in girth at breast high; in the Kullar range, trees planted in 1885-86 have attained a height of from 10 to 14 feet; in Wynaad, plants planted out in the year average 3½ feet in height; and in Trichinopoly, plants obtained in 1886 range from 8 to 11½ feet high; in poor and dry soil, the growth is not so good, and in Sriharikot the plantation is said to be a failure. As with the Dates, much of the loss appears to be due to want of either care or experience in transplanting and tending, and is probably avoidable.

The giant Bamboos in Wynaad made vigorous growth: the various Rubber plants and the Ipecacuanha there also did well; the latter was tested by the Government Botanist and found to yield excellently. The commencement of what promises to be a successful experiment was made with Sappan wood in Wynaad, 2,000 seeds being planted out and germinating without a failure: a few *Eucalypti* have grown at heights down to 2,500 feet and are said to be doing well; they seeded at Palmaner: 78 Olive trees, a foot high, raised from seeds sent in 1886-87, are also in the Wynaad nurseries; in the same place, Lancewood seems to have been a failure.

Bombay.

There is nothing interesting to record under this head. Some of the Divi-divi, Carob, *Pithecolobium saman*, and varieties of *Eucalypti*, &c., which have established themselves in years past, are growing well. The seeds of several kinds of *Eucalyptus* and other Tasmanian trees were sown, but the result was not satisfactory, very few of the seeds having germinated. The young Mahogany plants sown last year are doing well and have attained a height of 2½ feet.

CHAPTER IV.

WORKING AND YIELD.

General.

The outturn of the various classes of forests, so far as it has been possible to ascertain this from the reports, is exhibited in the following statement.

It is to be regretted that in several Circles and Provinces no attempt is yet made to estimate the total outturn of fuel and timber reduced to one common denomination of cubic feet solid. Attention is again called to the rule on the subject contained in the Forest Department Code, as the omission renders it impossible to give in a complete form a general statement of the outturn from all the forest lands under the control of the Department.

In Madras, the outturn is still given in *tons* of apparently varying values, and it is, therefore, considered unsafe to accept the figures given. In Bombay, owing to the various denominations used, no comparison as regards the yield is possible.

It is desirable that the outturn of timber and fuel should in all cases be reduced to its estimated equivalent in cubic feet solid, and that the money-value of all other produce should be shown in the returns.

PROVINCE.	Reserved Forests.			Protected Forests.			Unclassed State Forests			Average outturn per square mile.								
										Reserved Forests.			Protected Forests.			Unclassed State Forests.		
	Timber and Fuel.	Bamboos.	Minor Produce.	Timber and Fuel	Bamboos	Minor Produce	Timber and Fuel	Bamboos.	Minor Produce.	Timber and Fuel.	Bamboos	Minor Produce	Timber and Fuel	Bamboos	Minor Produce.	Timber and Fuel.	Bamboos.	Minor Produce.
	c. ft.	No.	R	c. ft.	No.	R	c. ft.	No.	R	c. ft.	No.	R	c. ft.	No.	R	c. ft.	No.	R
Bengal	19,587,449	6,196,000	77,931	6,072,897	538,000	1,58,342	380,851	10,387,000	9,409	3,928	1,242	15	2,774	246	72	94	2,576	2
N.-W. P. and Oudh	10,692,133	20,708,944	2,39,186	359,400	71,680	1,501	88,820	58,760	2,770	2,963	5,740	66	4,923	982	21	673	445	21
Punjab	*8,160,781	637,826	78,282	367,355	...	57,821	29,177,364	41,709	2,86,526	5,316	415	51	727	...	114	9,109	13	89
Central Provinces	†6,825,100	†6,749,686	†6,05,752	...	...	...	...	...	...	335	538	33	...	...	...	...	...	...
Lower Burma	‡1,092,339	1,654,686	31,105	...	...	...	‡5,944,084	..	1,68,982	214	325	6	...	...	...	§ ..	§ ..	§...
Upper Burma	...	...	...	4,896,576	4,793,149	17,089	...	...	...	...	...	...	950	930	3	...	...	...
Assam	950,776	850,215	3,850	173,714	983,025	2,768	3,668,200	91102	48,164	287	257	1	185	1,048	3	632	157	8
Coorg	79,149	217,631	2,231	...	...	...	‖ ..	4,612	...	328	903	9	...	...	...	...	15	...
Ajmere	¶161,232	3,727	49,624	...	...	...	...	...	...	1,159	27	357	...	...	...	...	...	...
Baluchistan	...	...	...	...	...	...	**24,615	...	1,195	...	...	...	...	...	...	1,367	...	66
Andamans	...	...	...	...	...	...	1,132,726	428,181	1,805	...	...	...	...	...	...	...	...	...
Berar	††281,813	1,456,779	2,06,391	...	...	...	595,359	876,591	17,893	183	945	134	...	..	...	231	341	6

* Includes 12,943 cubic feet from Guzara Forests (not on books of Forest Department).

† Does not include produce removed on commutation licenses, nor produce the right to collect which was leased.

‡ Does not include fuel, the outturn of which is given in "trees" for the Pegu Circle; and for the Tenasserim Circle not given at all, as licenses were issued for the number of men engaged and not for the quantity of wood consumed.

Cannot be stated, as the area of Unclassed forests is not given.

§ In addition 731 poles, 273 trees and 3,187 cart-loads of fuel, the cubic contents of which are not given.

‖ 352 trees and 3,403 cart-loads removed, but cubic contents are not given.

¶ The measurements given are approximate, and refer to the Merwara Subdivision only. All wood was sold in Ajmere by auction and cut and removed by purchasers. Free grants were made of standing wood, for which no measurements are given.

** In addition 272 rafters, the cubic contents of which are not given.

†† In addition 2,631 Teak poles, the cubic contents of which are not given. Does not include timber and firewood sold in the Amraoti District, the cubic contents of which are not given.

Bengal.

The outturn from forests of different descriptions, arranged according to the agency by which the produce was removed, was as follows :—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
			No.	₹
Reserved Forests.				
By Government agency . .	41,909	255,575	1,131,000	917
„ Purchasers . . .	7,251,321	11,014,866	5,061,000	75,474
Free grants	23,778	1,000,000	4,000	1,540
Total .	7,317,008	12,270,441	6,196,000	77,931
Protected Forests.				
By Government agency . .	...	...	...	...
„ Purchasers . . .	401,420	5,670,917	243,000	6,499
Free grants	560	...	295,000	1,51,843
Total .	401,980	5,670,917	538,000	1,58,342
Unclassed State Forests.				
By Government agency . .	13,113	12,512	1,000	...
„ Purchasers . . .	281,514	72,912	10,386,000	9,409
Free grants	800	...	...	...
Total .	295,427	85,424	10,387,000	9,409
Grand Total in 1887-88 .	8,014,415	18,026,782	17,121,000	2,45,682
„ 1886-87 .	7,070,407	17,414,686	17,974,000	2,75,502
Increase or decrease in 1887-88 .	+944,088	+612,096	−853,000	−29,820

The outturn in timber increased by 944,000 cubic feet, that of fuel by 612,000, and upwards of a million maunds of minor forest-produce were extracted in excess of last year. In bamboos alone there has been a falling off of 853,000, which was due, however, to several causes connected with the supply and not to a falling off in the demand. The increase in the outturn as regards timber and fuel has been exclusively met from the Reserved forest area, which yielded an average of 6·14 cubic feet per acre. The State forests in Bengal are unburdened with rights, but considerable concessions were granted during the year, aggregating ₹1,72,000 in value according to the Conservator's calculation.

North-Western Provinces and Oudh.

The quantity of produce removed from each class of forest by each of the three great agencies was as follows:—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Reserved Forests.			No.	₹
By Government agency	708,618	797,016	561,710	6,676
„ Purchasers	1,567,306	2,330,487	19,496,274	1,83,097
„ Right-holders	795,789	326,004	130,400	29,361
Free grants	1,819,274	2,347,639	20,560	20,052
Total	4,890,987	5,801,146	20,708,944	2,39,186
Protected Forests.				
By Government agency	1,015	143,300	53,720	...
„ Purchasers	12,719	146,842	17,960	1,501
„ Right-holders	52,035	200	...	...
Free grants	3,289	...	...	...
Total	69,058	290,342	71,680	1,501
Unclassed State Forests.				
By Government agency	5,859	...	23,920	7
„ Purchasers	20,876	62,085	34,840	2,763
„ Right-holders	...	...	..	...
Free grants	...	...	...	...
Total	26,735	62,085	58,760	2,770
Grand Total in 1887-88	4,986,780	6,153,573	20,839,384	2,43,457
„ 1886-87	5,109,655	6,564,706	23,787,793	2,74,211
Decrease in 1887-88	122,875	411,133	2,948,409	30,754

The outturn of timber decreased by 123,000 cubic feet, and of fuel by 411,000 cubic feet; bamboos by nearly 3,000,000, and the value of other minor produce by nearly ₹31,000.

The following statement shows the value in rupees of the produce yielded by the forests during the year:—

		₹
Timber	Sold	9,64,000
	Granted free	1,42,000
Fuel	Sold	1,24,000
	Granted free	81,000
Grazing and Minor Produce	Sold	2,93,000
	Granted free	91,000
	Total Value	16,95,000

Punjab.

The outturn from each class of forests was as follows during the year:—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Reserved Forests.			No.	₹
By Government agency . .	*2,355,261	...	629,500	1,285
„ Purchasers	4,724,667	...	8,326	50,013
„ Right-holders . . .	1,029,169	...	...	22,037
Free grants	51,684	...	...	4,947
Total .	8,160,781	...	637,826	78,282
Protected Forests.				
By Government agency . .	...	19,320	...	...
„ Purchasers	98,115	249,920	...	47,821
„ Right-holders . . .	...	...	...	10,000
Free grants	...	...	...	...
Total .	98,115	269,240	...	57,821
Unclassed State Forests.				
By Government agency . .	157,227	330,034	37,240	426
„ Purchasers	114,544	463,327	4,469	1,04,619
„ Right holders . . .	3,379,508	24,120,437	...	1,81,228
Free grants	572,897	39,390	...	213
Total .	4,224,176	24,953,188	41,709	2,86,526
Total in 1887-88 .	12,483,072	25,222,428	679,535	4,22,629
„ 1886-87 .	2,460,768	20,191,466	746,016	1,62,355
Increase or decrease in 1887-88 .	+10,022,304	+5,030,962	—66,481	2,60,274

* Includes 12,943 cubic feet from Guzara forests (not on books of Forest Department).

The apparently large increase in the total outturn as compared with the previous year is not real, being merely due to the entry of produce extracted by right-holders, which in former statements was very partially recorded. The figures thus entered are only the result of rough estimates, for which no accuracy is claimed. The timber extracted departmentally during the year decreased largely, and a very much less quantity of timber and fuel was sold than in the previous year.

Central Provinces.

The outturn from the Reserved forests of all classes was, as far as can be gathered from the Report submitted, as follows; the outturn from Unclassed State forests has not been recorded :—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Reserved Forests.			No.	R
By Government agency . .	117,300	23,850	209,281	21,034
„ Purchasers . . .	2,021,950	4,632,000	5,299,756	5,81,718
„ Right-holders . . .	...	...		...
Free grants	...	...	...	...
Total .	2,169,250	4,655,850	5,509,037	6,05,752

Does not include produce removed on commutation licenses, nor produce the right to collect which was leased.

It is impossible to institute any comparison between these figures and the outturn of the forests in previous years, because the outturn has never been properly recorded in accordance with the provisions of the Forest Code, and the statements showing the yield are still imperfect.

Lower Burma.

The following statement shows the outturn from each class of forests :—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Reserved Forests.		Information wanting in some cases, and in other cases the quantities of fuel are given in different denominations.	No.	R
By Government agency . .	783,645		...	...
„ Purchasers	308,694		1,614,950	30,330
„ Right-holders . . .	...		39,950	775
Free grants	...		...	...
Total .	1,092,339		1,654,900	31,105
Unclassed State Forests.				
By Government agency . .	1,286,418		...	...
„ Purchasers . . .	4,523,395		...	1,68,982
„ Right-holders . . .	68,681		...	..
Free grants	65,500		...	...
Total .	5,944,084		...	1,68,982
Grand Total in 1887-88 .	7,036,423		1,654,900	2,00,087
„ 1886-87 .	4,891,027		1,283 700	1,21 934
Increase in 1887-88 .	2,145,396		371,200	78,153

This large increase in the outturn is entirely due to the large quantity of timber of the unreserved kinds extracted by purchasers or traders under permits. This was to some extent due to the demand for sleepers for the Mandalay line and for Bengal.

Upper Burma.

The outturn from the Upper Burma forests was as follows:—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
			No.	₹
Protected Forests.				
By Government agency . .	5,922	...	...	...
„ Purchasers	3,994,309	879,685	4,793,149	17,089
„ Right-holders . . .	...	...	...	...
Free grants	16,660	...	...	...
Total .	4,016,891	879,685	4,793,149	17,089

Of the teak extracted by lease-holders, 1,967,950 cubic feet were worked out by the Bombay-Burma Trading Corporation, compared with 1,949,300 cubic feet extracted by them in the previous year. As might be expected as a consequence of the annexation, the impetus given to the construction of houses and military buildings caused a great demand for teak, of which 1,613,650 cubic feet were removed from the forests by local purchasers during the year.

Assam.

The following was the outturn from the forests during the year:—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
			No.	₹
Reserved Forests.				
By Government agency . .	4,094	...	3,345	770
„ Purchasers	639,341	23,350	796,100	2,324
„ Right-holders . . .	...	...	...	756
Free grants	25,966	258,025	50,770	...
Total .	669,401	281,375	850,215	3,850
Protected Forests.				
By Government agency . .	...	...	...	...
„ Purchasers	34,138	831	424,625	871
„ Right-holders . . .	...	...	...	1,897
Free grants	11,900	126,845	558,400	...
Total .	46,038	127,676	983,025	2,768

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Unclassed State Forests. .			No.	R
By Government agency . .	9,405	820	3,000	...
„ Purchasers	528,890	154,716	157,911	47,202
„ Right-holders . . .	..	..	...	902
Free grants	846,755	2,127,584	750,791	60
Total .	1,385,050	2,283,150	911,702	48,164
Grand Total in 1887-88 .	2,100,489	2,692 201	2,744,942	54,782
„ 1886-87 .	1,558,580	458,912	1,863,030	55,272
Increase or decrease in 1887-88 .	+541,909	+2,233,289	+881,912	—490

This apparent increase in the outturn is mainly due to produce granted free to the ryots for home consumption, the quantity of which has more than doubled as compared with the previous year. But it is believed that this is merely nominal, being due to great strictness in recording the produce so granted. Satisfactory progress was, however, made in increasing the sale of sâl timber, of which 333,600 cubic feet were sold, as compared with 188,400 in the previous year.

Coorg.

The outturn is stated in various denominations for which no reducing factor is given. Any exact comparison of the yield from the various classes of forests is impossible.

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Reserved Forests.			No.	R
By Government agency . .	75,908+731 poles	.....	9,145	...
„ Purchasers	3,241+273 trees	3,187 cart-loads	208,186	2,231
„ Right-holders . . .	.....	.....	...	...
Total .	79,149+731 poles and 273 trees.	3,187 cart-loads	217,631	2,231
Unclassed State Forests.				
By Government agency . .	.....	.....	...	...
„ Purchasers	31 trees .	3,403 cart-loads	...	...
„ Right-holders . . .	321 „ .	.....	4,612	...
Total .	352 trees .	3,403 cart-loads	4,612	...
Grand Total in 1887-88 .	79,149+731 poles +625 trees.	6,590 cart-loads	222,243	2,231
„ 1886-87 .	66,537+724 poles +167 trees.	3,981 „	193,729	1,338
Increase in 1887-88 .	12,612+7 poles+ 458 trees.	2,609 cart-loads	28,514	893

Ajmere.

The following statement exhibits the outturn during the year:—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Reserved Forests.			No.	₹
By Government agency	} ... *	{ 61,996	...	{ ...
„ Purchasers	}	{ 96,236	3,727	{ 2,239
„ Right-holders	...	...		47,385
Free grants		...	...	...
Total in 1887-88	...	161,232	3,727	49,624
„ 1886-87	...	230,802	5,100	51,163
Decrease in 1887-88	...	69,570	1,373	1,539

* The measurements given are approximate, and refer to the Merwara Subdivision only. All wood was sold in Ajmere by auction and cut and removed by purchasers. Free grants were made of standing wood, for which no measurement is given.

Baluchistan.

The outturn for the year has been shown as follows:—

Class of Forests.	Outturn, in Cubic Feet.		Bamboos	Minor Produce.
	Timber.	Firewood.		
Unclassed State Forests.			No.	₹
By Government agency	70 rafters.	10,700	...	...
„ Purchasers	1,315 c. ft. and 521 rafters.	12,600	...	1,195
Total in 1887-88	1,315 c. ft. and 591 rafters.	23,300	...	1,195
„ 1886-87	34 c. ft. and 319 rafters.	26,100	...	1,203
Increase or decrease in 1887-88	+ 1,281 and 272 rafters.	−2,800	...	−8

Andamans.

The following statement exhibits the outturn during the year:—

Class of Forests	Outturn, in Cubic Feet.		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Unclassed State Forests.			No.	₹
By Government agency	223,780	720,662	260,181	1,435
„ Purchasers	35,284	33,000	168,000	370
„ Right-holders	...	120,000	...	...
Total in 1887-88	259,064	873,662	428,181	1,805
„ 1886-87	166,605	589,517	336,913	895
Increase in 1887-88	92,459	284,145	91,268	910

No explanation is furnished regarding the cause of the satisfactory increase during the year in the outturn.

Berar.

The outturn during the year from each class of forest is exhibited in the following statement:—

Class of Forests.	Outturn, in Cubic Feet		Bamboos.	Minor Produce.
	Timber.	Fuel.		
Demarcated State Forests.			No.	R
By Government agency . . .	...	...	...	...
„ Purchasers	54,970	42,872	1,407,619	32,777
„ Right-holders	...	...	...	...
Free grants	75 teak goles	...	...	35
Total .	54,970 & 75 teak goles.	42,872	1,407,619	32,812
District Reserved Forests.				
By Government agency . . .	...	...	...	...
„ Purchasers	63,219 & 2,476 teak goles.	120,555	49,160	1,73,579
„ Right-holders	...	...	...	...
Free grants	115 & 80 teak goles.	52	...	...
Total .	63,364 & 2,556 teak goles.	120,607	49,160	1,73,579
Unclassed State Forests.				
By Government agency . . .	...	...	...	...
„ Purchasers	314,940	250,119	876,591	17,893
„ Right-holders	...	...		...
Free grants	...	...	...	...
Total .	344,940	250,119	876,591	17,893
Grand Total in 1887-88 .	463,274* & 2,631 teak goles.	413,898*	2,333,370	2,21,284
„ 1886-87 .	318,932 & 227 pieces	386,775	2,122,741	191,034
Increase in 1887-88 .	144,342	27,123	210,629	30,250

* Timber and firewood sold in the Amraoti District, measurements not given.

Madras.

The figures showing the outturn of the forests during the year cannot be accepted, and the Conservators have been directed to furnish corrected statements showing the yield in cubic feet, or in tons of 50 cubic feet, which is the measurement adopted in the timber-trade. The indication of bamboos by number and of minor produce by its equivalent gross value alone meets all requirements and enables the statement to be incorporated in the General Review of Forest Administration in India.

Bombay.

No remarks or comparisons as regards the yield of the forests are possible, as the various descriptions of forest-produce are not reduced to the denomination of cubic feet solid in the case of timber and fuel, and money in the case of minor forest-produce.

CHAPTER V.

FINANCIAL RESULTS.

General.

The Receipts and Surplus of the various provinces during the year under review, compared with the averages of the preceding five years, are as follows :—

Province	Revenue.		Surplus.		Deficit.		Proportion of Surplus to Gross Revenue	Net Revenue per square mile of land under control of Forest Department.
	1887-88.	Average for preceding five years.	1887-88.	Average for preceding five years.	1887-88.	Average for preceding five years.		
	R	R	R	R	R	R	R	R
Imperial	4,847	12,248	.	...	73,779	67,402	...	...
Bengal	6,57, 94	6,34 869	2,67,426	2,38 214	...	..	41	24
N.-W .P and Oudh	12,17 454	11,93,242	4,16,706	5,35,875	..	...	33	110
Punjab	7,86,936	8,84,832	1,09,024	2,28,608	...	...	14	21
Central Provinces	10,93,369	10,21,929	5,40,130	5,36,020	...	...	49	26
Lower Burma	22,18,897	20,84,335	11,86,203	9,46,129	...	...	53	120
Upper Burma	2 96,876	80,9 0	1,75,724	56, 22	...	...	59	34
Assam	2 67 312	2,13,567	40,4 0	3,980	...	...	15	4
Coorg	1,27,028	1,03,352	54,399	30,476	.		43	67
Ajmere	11 293	10,784	...	...	4,6 1	6 616	...	...
Baluchistan	14,063	10,789	...	..	3,0 90	5,524	..	...
Andamans	1,04,062	41,370	41,383	9,289			40	...
Forest School	777	308	...	...	32,352	15,375	...	...
Forest Surveys (Imperial)	40	151	...	..	32,828	26,081	...	...
TOTAL	68,33 748	65,92,766	26,84,462	25,85 213	...	...	38	43
Berar	4,06,447	3,30,815	2,22,682	1,66,092			55	54
Forest Surveys (Berar)	596	599	.	...	41,502	33,679	...	...
Total Bengal Presidency	72.10,791	69,24,210	28,65,612	27 51,305	...	...	40	43
Madras	13,74,920	11,87,375	2,45,708	2,03,330	...	...	18	15
Bombay	30,32,577	29,41,883	10,88,572	11,38,392	..	...	36	76
GRAND TOTAL	1,16,48,288	1,10,53,168	41,99,922	40,93,027	...	...	36	43

The *gross* Revenue increased during the year from close on 114 lakhs during the preceding year to nearly 116½ lakhs, which is the highest figure yet arrived at by the Department. The *surplus* Revenue also increased from close on 39½ lakhs to nearly 42 lakhs, or by over 2½ lakhs, and was greater than in any past year. The Surplus for the last five years is shown in the following table :—

Year.	British Territories.				Berar.	Grand Total.
	Bengal Presidency	Madras.	Bombay.	Total.		
	R	R	R	R	R	R
1883-84	29,05,607	1,66,971	9,38,928	40,11,596	1,36,396	41,47,992
1884-85	17,86,464	2,70,411	9,96,119	30,52,994	1,10,666	31,63,660
1885-86	22,24,991	2,60 678	15,26,825	40,12,494	1,18,3 0	41,30,794
1886-87	26,59,603	93,789	10-79.766	38,33,158	1,09,736	39,42,894
1887-88	26,84,462	2,45,708	10,88,572	40,18,742	1,81,180	41,99,922

The following general statement shows for all provinces the average revenue and expenditure per square mile during the past five years for the areas

under the control of the Department, as well as the percentages of outlay chargeable to Conservancy and Works and to Establishments; the detailed statements from which these have been compiled are given, separately for each Conservator's charge, in the Appendix :—

Name of Circle.	Average Forest area under the control of the Staff during past five years.	Average Revenue and Expenditure per square mile of Forest area.					Proportion of Gross Revenue.	
		Gross Revenue.	Expenditure on Conservancy and Works.	Expenditure on Establishments.	Total Expenditure.	Net Surplus	Expended on Conservancy and Works.	Expended on Establishments.
	Sq. miles.	R	R	R	R	R	Per cent.	Per cent.
Bengal	11,280	56	16	19	35	21	29	33
N.-W. Provinces and Oudh. Central Circle	1,731	290	84	67	151	139	29	23
N.-W. Provinces and Oudh. Oudh „	1,188	465	290	86	376	189	51	16
N.-W. Provinces and Oudh. School „	795	403	210	103	313	90	52	26
Punjab	4,824	183	72	64	136	47	40	35
Central Provinces	20,033	51	14	10	24	27	28	20
* Lower Burma Pegu Circle	3,231	487	184	58	242	245	39	12
* Lower Burma Tenasserim „	1,179	502	263	85	348	154	53	17
Upper Burma	5,188	57	8	15	23	34	15	26†
Assam	9,777	22	9	12	21	1	42	57
Berar	4,271	77	14	24	38	39	19	31
‡ Average under Government of India	63,497	109	40	25	65	36	23	59
Madras Northern Circle	4,737	157	53	64	117	40	36	40
Madras Southern „	5,806	139	57	64	121	18	42	46
Bombay Northern Circle	8,200	119	32	48	80	39	26	41
Bombay Southern „	5,265	260	85	41	126	134	34	15
Bombay Sind Circle „	3,328	852	501	140	641	211	58	17
Average for Madras and Bombay	27,536	150	56	44	100	50	37	29
Average for India	91,003	122	44	32	76	46	37	25

* Area of Reserves only entered. Tenasserim figures include import duty.
† For one year only.
‡ Exclusive of Coorg, Ajmere, Baluchistan, and the Andamans.

Bengal.

The following table shows the financial results of the year under review, as compared with those of 1886-87 :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1887-88	6,57,791	3,90,368	2,67,426	41
1886-87	6,53,631	4,22,781	2,30,853	35
Increase or decrease in 1887-88	+4,160	−32,413	+36,573	+6

The decrease in Charges was R18,978 under "A—Conservancy and Works" and R13,435 under "B—Establishments." The decrease under the former head was owing chiefly to curtailment of work in Buxa and to the cost of the new steamer in the Sundarbans having been charged in the preceding year. There was a decrease under all the heads of "B—Establishments," but chiefly under pay of superior officers owing to absence of officers on leave.

The net difference in value of timber in sale depôts and of stores was R30,649 against the year.

The following abstract gives the distribution of the Receipts and Charges of the year under the three main heads :—

Heading	Departmental Timber Operations.	Other Revenue	Formation, protection, and improvement of forests	Total.
	R	R	R	R
Receipts	86,112	5,71,682	...	6,57,794
Charges	61,444	1,49,171	1,79,753	3,90,368
Surplus	24,668	4,22,511	...	2,67,426
Deficit	...	...	1,79,753	..

There was a surplus under "Departmental Timber Operations" in all divisions.

The financial results compare very favourably with those of the three previous years.

North-Western Provinces and Oudh.

The financial results of the year's operations, as compared with those of the previous year, were as follows :—

Circle.	Receipts	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
Central	4,60,150	2,37,543	2,22,907	48
Oudh	4,29,870	3,14,439	1,15,431	27
School	3,57,134	2,77,592	79,542	22
		+ 1,174	− 1,174	
Total in 1887-88 .	12,17,454	8,30,748	4,16,706	33
,, 1886-87 .	15,73,556	9,19,580	6,53,976	42
Decrease in 1887-88 .	3,26,102	88,832	2,37,270	9

The gross Receipts for the three Circles were R12,47,454, against R15,73,556 in 1886-87 ; and the Expenditure R8,30,748, against R9,19,580. The net Surplus was R4,16,706 : this is R2,37,270 less than in 1886-87, and it is also less than the net Surplus in any year since 1882-83. In 1882-83 there was a Deficit of nearly R50,000 in the School Circle, while the other two Circles yielded a net income of only R2,23,000. The sleeper period set in in 1883-84, and good surpluses ensued in successive years. The falling off in the demand for railway sleepers and the competition of lessees of private forests for such demand as still exists have seriously lessened this source of revenue. A fall in the selling rate of fuel in the large towns is the inevitable consequence of the northern extension of the provincial railway system. The Forest Department must accept the situation, and endeavour to work with such economy as to make some profit out of the lower scale of prices.

The following statement shows the receipts and expenditure under the headings of Departmental Timber Operations, Other Revenue, and Formation, &c., of Forests.

Circles.	Departmental Timber Operations			Other Revenue			Formation, protection, and improvement of forests	Net Surplus.
	Receipts	Charges	Surplus	Receipts	Charges	Surplus		
	R	R	R	R	R	R	R	R
Central . . .	43,748	37,295	6,453	4 16,702	99,278	3,17,424	1 00,970	2,22,907
Oudh . . .	2,37,965	1,64,309	73,656	1,91,905	71,801	1,20,104	78,329	1,15,431
School . . .	2,28,279	1,40,581	87,698	1,28,785	31,632	97,153	1,05,379	79,472
Total .	5,09,992	3,42,185	1,67,807	7,37,392	2,02,711	5,34,681	2,84 678	4,17,810

Punjab.

The financial results compare with those of the previous year as follows :—

Year	Receipts	Charges.	Surplus	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1887-88	7,86,936	6,77,912	1,09,024	14
1886-87	11,27,277	7,16,510	4,10,767	36
Decrease in 1887-88 .	3,40,311	38,598	3,01,743	22

In consequence of the large decrease in the sale of timber and fuel, which has been already explained, the financial results of the year have not been favourable. The Surplus as compared with that of the previous year shows a decrease of R3,01,743, and represents only 14 per cent. of the gross Revenue, against 36 per cent. in 1886-87. In view of the cessation of demand for firewood for engine-fuel and the probable contraction in the demand for sleepers as the various railways in the North-West of India are completed, the financial results of the working of the Forest Department in the Punjab may very probably fall during the next five or ten years considerably below those of the same preceding periods.

The Surplus or Deficit under the three main heads of account were as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	4,06,824	3,80,112	...	7,86,936
Charges	4,01,862	1,07,073	1,68,977	6,77,912
Surplus	4,962	2,73,039	...	1,09,024
Deficit	...	...	1,68,977	...

The small profit on departmental timber operations was caused by the non-sale of deodar sleepers and logs, as already explained.

Central Provinces.

The financial results, as compared with those of the previous year, were as follows :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	₹	₹	₹	Per cent.
1887-88	10,93,369	5,52,939	5,40,430	49
1886-87	9,57,410	4,99,293	4,58,117	48
Increase or decrease in 1887-88 . .	+1,35,959	+53,646	+82,313	+1

These results are satisfactory. The gross Receipts increased by ₹1,35,959, and the net Receipts by ₹82,313. Of the increase in the gross Receipts, ₹57,794 resulted from departmental operations, and ₹78,165 from the removal of produce by purchasers and from grazing. On the Receipt side, head II, the most striking items are an increase of ₹94,996 on account of grazing and fodder grass, and a decrease of ₹16,277 under the sub-head "Other Minor Produce."

The results of operations, arranged under the three headings, were as follows :—

Heading.	Departmental Timber Operations	Other Revenue.	Formation, protection, and improvement of forests	Total.
	₹	₹	₹	₹
Receipts	1,42,819	9,50,550	...	10,93,369
Charges	77,651	2,71,483	1,74,362	5,26,496
Surplus or Deficit	+65,168	+6,76,067	−1,74,362	+5,66,873

Lower Burma.

The financial results of the year under review, as compared with those of the previous year, were as follows :—

Circle.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Receipts.
	₹	₹	₹	Per cent.
Pegu	16 75 091	7,03,320	9,71,774	58
Tenasserim	5,43,803	3,29,374	2,14,429	39
Total in 1887-88	22,18,897	10,32 694	11,86 203	53
„ 1886-87	19,98,667	10,75,830	9,22,837	46
Increase or decrease in 1887-88 . .	+2,20,230	−43,136	+2,63,366	+7

The financial results of the year's working were, therefore, satisfactory. In the Tenasserim Circle, the Receipts were considerably better than was expected,

owing to a sudden rise in the price of teak towards the end of the year. This also stimulated the demand for other timber of less expensive kinds. The continuance of the high prices for cutch led to a further increase in the revenue from cutch-boiling licenses, which yielded R1,66,300, or R54,820 more than in 1886-87, and over three times as much as in 1885-86.

The main cause of the decreased Expenditure was the non-arrival within the year of a quantity of timber that had been expected. In other respects the decrease was due to ordinary and trifling fluctuations under various heads.

The distribution of Receipts and Charges under the three main headings was as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	16,74,973	5,43,924	....	22,18,897
Charges	7,47,007	1,48,223	1,37,464	10,32,694
Surplus	9,27,966	3,95,701	...	11,86,203
Deficit	...	...	1,37,464	...

Upper Burma.

The financial results of the year's working were satisfactory, and, since the liabilities attaching to the Forest property, as inherited from the late Government, have been adjusted during the course of 1888-89, a large increase in the net Revenue may safely be expected in the immediate future. As Upper Burma was only formed into a separate Circle in March 1887, no comparison of the financial results with those of previous years is possible.

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1887-88	2,96,876	1,21,152	1,75,724	59

Of the Revenue, R1,12,000 consisted of lump sums paid on account of rental by three of the *ex* King's lease-holders. The balance was obtained mainly from duty on teak timber, and partly from cutch licenses and from bamboos, charcoal, and firewood. The above Revenue includes no payments by the Bombay-Burma Trading Corporation on account of the leases held by them, as no final settlement of terms with the Corporation had been arrived at until after the close of the year; nor does it include the sum of R1,00,000 paid to Government for the india-rubber monopoly for the year ending the 15th October 1888. The Expenditure was much less than the estimate. Fewer Controlling officers actually joined the Circle than had been reckoned on, fewer divisions could, therefore, be formed, and less outlay was incurred in organizing establishments.

The distribution of Receipts and Charges was as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	...	2,96,876	...	2,96,876
Charges	...	59,457	61,695	1,21,152
Surplus	....	2,37,419	...	1,75,724
Deficit	...	..	61,695	...

Assam.

The following table shows the financial results of the year :—

Year.	Receipts	Charges.	Surplus or Deficit.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1887-88	2,67,312	2,26,892	40,420	15
1886-87	2,12,011	2,12,287	276	*Nil.*
Increase or decrease in 1887-88 .	+55,301	+14,605	+10,696	15

The Forest Revenue collected during the year was R55,301 more than in the previous year, chiefly on account of the revival of the trade in sâl exported to Bengal and a large increase in sales of trees on land allotted for cultivation.

The Forest Expenditure was more by R14,605 than in the previous year, of which R6,837 represented the increase under "Conservancy and Works" and R7,768 under "Establishments."

The financial results were a Surplus of R40,420, which was the highest attained since 1882-83.

The distribution of Receipts and Charges was as follows :—

Heading	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total
	R	R	R	R
Receipts	3,772	2,63,540	...	2,67,312
Charges	4,341	97,811	1,24,740	2,26,892
Surplus	...	1,65,729	...	40,420
Deficit	569	...	1,24,740	...

Coorg.

The financial results, as compared with those of the previous year, were as follows :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1887-88	1,27,028	72,629	54,399	43
1886-87	99,291	74,088	25,203	25
Increase or decrease in 1887-88 .	+27,737	−1,459	+29,196	+18

The total Revenue from all heads was R1,27,028, against R99,291 in the preceding year. The Expenditure was R72,629, against R74,088, leaving a Surplus of R54,399 in favour of the Department. It is satisfactory to note that the general increase under nearly all heads was due to the general prosperity of the country.

The Revenue and Expenditure were distributed as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	82,291	44,737	...	1,27,028
Charges	36,645	5,706	30,278	72,629
Surplus	45,646	39,031	...	54,399
Deficit	...	...	30,278	...

Ajmere.

The financial results of the year under review were, as compared with those of the previous year, as follows :—

Year.	Receipts.	Charges.	Deficit.
	R	R	R
1887-88	14,293	18,897	4,604
1886-87	11,274	20,744	9,470
Increase or decrease in 1887-88 . . .	+3,019	−1,847	−4,866

Although the financial results are no criterion of the success of Forest Administration in Ajmere, it is satisfactory to notice that the gross Revenue increased during the year under review, and that the annual Deficit was materially reduced.

Arranged under the three main heads, the Receipts and Expenditure were as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	3,120	11,173	...	14,293
Charges	1,690	5,211	11,997	18,898
Surplus	1,430	5,962	...	...
Deficit	...	...	11,997	4,605

Baluchistan.

The financial results of the year's working, as compared with those of the previous year, were as follows :—

Year.	Receipts.	Charges.	Deficit.
	R	R	R
1887-88	14,063	17,753	3,690
1886-87	14,081	17,836	3,755
Decrease in 1887-88	18	83	65

Half of the Revenue was derived from a royalty charge on wood supplied for railway works, and the other half chiefly resulted from the sale of wood brought to depôts and from grazing and grass. The total Revenue was almost identical with that of last year. The Expenditure was slightly less than that of last year.

The distribution of Receipts and Charges was as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	2,022	12,041	..	14,063
Charges	3,019	6,386	8,348	17,753
Surplus	...	5,655	...	...
Deficit	997	...	8,348	3,690

Andamans.

The financial results compared with those of the previous year were as follows :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per. cent.
1887-88	1,04,062	62,679	41,383	40
1886-87	31,870	25,769	6,101	19
Increase in 1887-88 . . .	72,192	36,910	35,282	21

This satisfactory increase in the Surplus for the year was due to increased sales of the produce.

The distribution of the Receipts and Charges is shown as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	1,02,945	1,117	...	1,04,062
Charges	61,881	...	798	62,679
Surplus	41,064	1,117		41,383
Deficit	...	...	798	...

Berar.

The following table compares the financial results of the year under review with those of 1886-87 :—

Year.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
1887-88	4,06,447	1,83,765	2,22,682	55
1886-87	3,26,261	1,71,704	1,54,557	47
Increase in 1887-88 . . .	80,186	12,061	68,125	8

The proportion of Surplus to gross Revenue increased by 8 per cent., and the financial results were on the whole good, the Surplus being the highest on record.

Distributed under the main heads, the Revenue and Expenditure were as follows :—

Heading.	Departmental Timber Operations.	Other Revenue.	Formation, protection, and improvement of forests.	Total.
	R	R	R	R
Receipts	...	4,06,247	...	4,06,247
Charges	...	1,20,817	62,343	1,83,160
Surplus	...	2,85,430	...	2,23,087
Deficit	...	...	62,343	...

Madras.

The following table shows the financial results of the year:—

Circle.	Receipts.	Charges.	Surplus.	Proportion of Surplus to gross Revenue.
	R	R	R	Per cent.
Northern	5,64,723	4,53,794	1,10,929	20
Southern	8,10,197	6,64,418 +11,000	1,45,779 —11,000	18
Total in 1887-88 . . .	13,74,920	11,29,212	2,45,708	18
„ 1886-87 . . .	12,46,911	11,53,122	93,789	8
Increase or decrease in 1887-88 .	+1,28,009	—23,910	+1,51,919	+10

The steady advance in Revenue, which has been continuous for the past five years, was maintained, while the Charges showed a slight decrease. The Expenditure included R12,000 for the purchase of a valuable forest in Malabar, at least R10,000 on account of settlement, about R56,000 for demarcation and survey, and R54,000 on communications. These are all items of which the greater part would be debited to Capital Account if that distinction were made, and when once the forests are settled, demarcated and surveyed, and provided with good roads, the total expenditure will probably be less than it is now, even if the staff be considerably augmented, while the income may be relied upon to rise much higher as the forests are brought under systematic working. A considerable portion of the increased Revenue is due to a charge being made for produce which was formerly enjoyed free.

Bombay.

The financial results of the year's operations are shown in the following table:—

Circle	Receipts	Charges.	Surplus.	Proportion of Surplus to gross Revenue
	R	R	R	Per cent.
Northern	9,68,625	7,23,373	2,45,252	25
Southern	14,31,650	7,46,180	6,85,470	48
Sind	6,32,302	4,65,126 +8,326	1,66,176 —8,326	26
Total in 1887-88 .	30,32,577	19,44,005	10,88,572	36
Total in 1886-87 .	30,32,676	19,52,910	10,79,766	35
Increase or decrease in 1887-88 .	—99	—8,905	+ 8,806	+1

No material increase took place in the amount of gross Revenue, but the proportion of Charges decreased by 1 per cent.

CHAPTER VI.

EXPORTS OF FOREST PRODUCE.

General.

The following table shows the quantities of forest produce exported from India during the year 1887-88 :—

Articles	Quantity in tons of 20 cwt. : in the case of teak, 50 cubic feet		Valuation at port of shipment in 1887-88.	
	Average of 5 years, 1882-83 to 1886-87.	In 1887-88.	Total.	Per ton.
			₹	₹
Caoutchouc	420	161	11,54,335	2,504
Shell-lac	5,301	6,202	42,03,274	678
Lac-dye	77	14	6,205	443
Cardamoms	108	69	2,04,858	2,969
Sandalwood, Ebony, and other ornamental woods . . .	Quantity not available		6,52,320	...
Cutch and Gambier . . .	11,997	13,653	43,38,466	318
Myrabolams	27,751	34,010	25,06,176	74
Teak	45,447	40,416	36,72,737	91
Total in 1887-88 .	...	...	1,67,34,371	
„ 1886-87 .	...	...	1,32,05,695	
Increase in 1887-88 .	...	...	35,32,676	

APPEN

STATE

Summary of the Revenue and Expenditure of the Forest

Budget Heads.	Bengal Presidency (British Territories).										
	Imperial.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Central Provinces.	Lower Burma.	Upper Burma.	Assam.	Coorg.	Ajmere.	Baluchistan.
REVENUE.	R	R	R	R	R	R	R	R	R	R	R
I.—Timber and other produce removed from the forests by Government agency.	...	84,429	5,04,761	3,95,115	1,42,818	16,26,722	...	1,974	82,291	3,120	2,022
II.—Timber and other produce removed from the forests by consumers or purchasers.	2,888	5,10,588	6,87,072	3,57,159	9,18,977	3,88,520	2,81,388	2,26,495	37,424	10,236	11,904
III.—Drift and waif wood and confiscated forest produce.	...	9,344	16,576	11,710	3,884	1,30,744	7,804	1,79[illegible]	10	...	...
IV.—Revenue from forests not managed by Government.	...	...	14,399	2,895	7,338	32,060	...	13,337	...	...	...
V.—Miscellaneous . .	2,009	23,433	24,646	20,057	20,352	40,851	7,684	23,708	7,303	937	[illegible]
Total Revenue .	4,847	6,57,794	12,47,454	7,86,936	10,93,369	22,18,897	2,96,876	2,67,312	1,27,028	14,293	14,063
EXPENDITURE.											
A.—Conservancy and Works.											
I.—Timber and other produce removed from the forests by Government agency.	...	44,159	2,87,392	2,52,331	62,716	5,95,378	...	4,227	25,679	1,690	2,859
II.—Timber and other produce removed from the forests by consumers or purchasers.	...	41,770	38,293	2,208	1,53,041	8,652	750	8,453	694	7	...
III.—Drift and waif wood and confiscated forest produce.	...	2,292	8,152	3,805	12	57,959	2,590	114	...	...	...
IV.—Revenue from forests not managed by Government.	...	...	2,335	...	...	6,566	...		...	...	...
V.—Rent of leased forests and payments to shareholders in forests managed by Government.	...	...	12,495	43,429	527	...	...	...	...	...	148
VI.—Live-stock, stores, tools and plant.	...	15,185	20,521	2,894	7,463	28,413	28,881	14,658	1,294	68	153
VII.—Communications and buildings.	..	27,070	92,101	14,578	4,924	7,457	8,482	9,907	2,468	462	227
VIII.—Demarcation, improvement, and extension of forests.	...	36,833	65,964	52,850	71,790	52,428	2,985	35,871	14,847	3,646	1,722
IX.—Miscellaneous . .	...	6,423	7,875	3,300	4,033	4,816	530	12,775	116	14	12
Total Conservancy and Works.	...	1,73,732	5,35,128	3,75,398	3,04,506	7,61,699	44,218	86,005	45,098	5,887	5,121
B.—Establishments.											
I.—Salaries . . .	41,967	1,78,193	2,45,912	2,43,344	2,12,552	2,30,348	63,280	1,13,809	22,428	10,943	9,465
II.—Travelling allowances .	4,583	29,451	34,318	41,150	17,987	31,502	12,142	22,446	4,394	1,326	2,816
III.—Contingencies . .	7,106	8,992	15,390	18,020	17,894	9,145	1,512	4,632	709	741	351
Total Establishments .	53,656	2,16,636	2,95,620	3,02,514	2,48,433	2,70,995	76,934	1,40,887	27,531	13,010	12,632
Charges in England .	17,580	...	...	...	...	...	...	...	...	...	...
Exchange on England .	7,390	...	...	...	...	...	...	...	...	...	...
Grand Total of Expenditure .	78,626	3,90,368	8,30,748	6,77,912	5,52,939	10,32,694	1,21,152	2,26,892	72,629	18,897	17,753
Surplus .	...	2,67,426	4,16,706	1,09,024	5,40,430	11,86,203	1,75,724	40,420	54,399	...	...
Deficit .	73,779	...	...	...	...	...	...	...	...	4,604	[illegible]

* Figures verified by Comptroller

DICES.

MENT* I.

Department in India for the year 1887-88.

Andamans.	Forest School.	Forest Surveys, Imperial.	Total Bengal Presidency (British Territories)	Madras.	Bombay.	Total British Provinces.	Berar.	Forest Surveys (Berar).	Grand Total.	Budget Heads.
R	R	R	R	R	R	R	R	R	R	REVENUE.
1,02,945	...	...	29,46,197	2,97,868	17,86,824	50,30,889	...	...	50,30,889	I.—Timber and other produce removed from the forests by Government agency.
1,117	...	...	34,63,718	10,47,483	11,48,415	56,59,616	4,02,499	...	60,62,115	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	...	...	1,81,870	12,383	13,382	2,07,635	2,474	...	2,10,109	III.—Drift and waif wood and confiscated forest produce.
..	...	...	70,029	14	33,610	1,03,653	...	...	1,03,653	IV.—Revenue from forests not managed by Government.
...	777	40	1,71,934	17,172	50,346	2,39,452	1,474	596	2,41,522	V.—Miscellaneous.
1,04,062	777	40	68,33,748	13,74,920	30,32,577	1,12,41,245	4,06,447	596	1,16,48,288	Total Revenue.
										EXPENDITURE.
										A.—Conservancy and Works.
34,039	...	...	13,10,173	1,62,859	8,25,603	22,98,935	...	...	22,98,935	I.—Timber and other produce removed from the forests by Government agency.
...	...	...	2,53,868	68,645	31,302	3,53,815	21,775	...	3,75,590	II.—Timber and other produce removed from the forests by consumers or purchasers.
...	..	...	74,924	2,000	302	77,226	...	...	77,226	III.—Drift and waif wood and confiscated forest produce.
...	...	...	8,901	24	5,091	14,016	...	...	14,016	IV.—Revenue from forests not managed by Government.
...	...	...	56,599	15,443	33,830	1,05,872	17,120	...	1,22,992	V.—Rent of leased forests and payments to shareholders in forests managed by Government.
11,540	2,174	1,413	1,34,687	21,344	3,692	1,59,723	5,193	1,358	1,66,274	VI.—Live-stock, stores, tools and plant.
....	...	...	1,67,676	54,854	9,854	2,32,384	24,106	1,039	2,57,529	VII.—Communications and buildings.
798	...	5,991	3,45,725	2,28,578	1,64,357	7,38,660	11,389	7,866	7,57,915	VIII.—Demarcation, improvement, and extension of forests.
5,310	3,525	1,963	50,692	10,698	11,986	73,376	1,377	530	75,283	IX.—Miscellaneous.
51,687	5,699	9,367	24,03,515	5,64,445	10,86,017	40,54,007	80,960	10,793	41,45,760	Total Conservancy and Works.
										B.—Establishments.
9,600	23,425	15,625	14,26,891	4,34,218	6,93,781	25,48,890	85,535	23,577	26,58,002	I.—Salaries.
1,200	1,551	6,215	2,11,081	1,03,009	1,06,252	4,20 342	11,899	5,785	4,38,026	II.—Travelling allowances.
192	2,454	1,661	88,799	27,540	57,955	1,74,294	5,371	1,913	1,81,608	III.—Contingencies.
10,992	27,430	23,501	17,20,771	5,64,767	8,57,988	31,43,526	1,02,805	31,305	32,77,636	Total Establishments.
...	...	...	17,580	...	...	17,580	...	...	17,580	Charges in England.
..	...	...	7,390	...	...	7,390	...	...	7,390	Exchange on England.
62,679	33,129	32,868	41,40,286	11,29,212	19,44,005	72,22,503	1,83,765	42,098	74,48,366	Grand Total of Expenditure.
41,383			26,84,462	2,45,708	10,88,572	40,18,742	2,22,682	...	41,93,922	Surplus.
...	32,352	32,828	...	..	...	...	...	41,502	...	Deficit.

and Auditor General,

STATEMENT II.*

Financial results of Forest Administration for the year 1887-88.

Provinces.	Timber and other produce removed from the Forests by Government Agency.			Other Revenue.			Formation, Protection, and Improvement of Forests.
	Receipts.	Charges.	Surplus or Deficit.	Receipts.	Charges.	Surplus or Deficit.	Charges.
	R	R	R	R	R	R	R
Bengal	86,112	61,444	24,668	5,71,682	1,49,171	4,22,511	1,79,758
N.-W. Provinces and Oudh	5,09,992	3,42,185	1,67,807	7,37,461	2,02,718	5,34,743	2,84,678
Punjab	4,06,825	4,01,862	4,963	3,80,112	1,07,073	2,73,039	1,68,977
Central Provinces	1,42,819	77,651	65,168	9,50,550	2,74,483	6,76,067	1,74,362
Burma (Lower)	16,74,973	7,47,007	9,27,966	5,43,924	1,48,223	3,95,701	1,87,464
Burma (Upper)	...	...	...	2,96,876	59,457	2,37,419	61,695
Assam	3,772	4,341	—569	2,63,540	97,811	1,65,729	1,24,740
Coorg	82,291	36,645	45,646	44,737	5,706	39,031	30,278
Ajmere	3,120	1,690	1,430	11,173	5,211	5,962	11,997
Baluchistan	2,022	3,019	—997	12,041	6,386	5,655	8,348
Andamans	1,02,945	61,881	41,064	1,117	...	1,117	798
Total	30,14,871	17,37,725	22,77,146	38,13,213	10,56,239	27,56,974	11,83,090
Berar	...	...	...	4,06,247	1,20,817	2,85,430	62,343
Total Bengal Presidency	30,14,871	17,37,725	22,77,146	42,19,460	11,77,056	30,42,404	12,45,433
Madras	2,97,869	3,67,719	—69,850	10,77,051	2,66,731	8,10,320	4,83,762
Bombay	17,95,832	9,85,912	8,09,920	12,39,743	2,03,874	10,35,869	7,45,735
Grand Total	51,08,572	30,91,356	30,17,216	65,36,254	16,47,661	48,88,593	24,74,930

* The figures in this Statement are taken from Form No. 62 appended to the Annual Forest Reports (Form No. 67, Madras Report).

STATEMENT III.*

Revenue, Expenditure, and Surplus of the Forest Department throughout India during the 24 years from 1864-65 to 1887-88.

REVENUE.

Provinces.	1864-65.	1865-66.	1866-67.	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-91.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial† . . .	421	30,959	752	543	1,159	1,436	3,107	2,334	2,771	1,225	1,144	1,465	2,490	1,36,772	16,716	17,214	18,887	27,407	30,732	32,907	26,574	14,708	4,186	4,847
Bengal	19,760	38,658	45,590	56,039	70,715	2,44,657	1,03,249	1,44,719	1,49,852	1,79,366	1,85,932	1,98,274	2,22,401	4,26,228	4,16,027	4,49,521	5,61,340	6,33,734	6,93,959	6,94,334	5,71,152	5,97,432	6,53,634	6,57,794
North-Western Provinces and Oudh . . .	7,23,440	7,31,382	7,79,201	5,84,503	7,85,210	8,32,945	4,24,257	11,70,900	19,39,115	19,32,677	13,63,358	12,64,356	11,50,671	12,03,108	11,26,755	10,39,966	9,42,228	10,66,094	10,13,403	16,11,383	15,72,319	14,61,495	15,73,556	12,47,454
Punjab	5,27,081	3,50,680	3,96,050	2,80,510	3,41,882	3,94,129	9,47,236	7,10,216	6,52,995	7,32,539	8,34,874	9,09,831	5,98,754	6,83,711	5,00,619	6,49,819	6,71,678	6,88,308	7,66,709	9,10,177	7,49,352	8,50,419	11,27,277	7,86,936
Central Provinces . .	68,760	1,34,042	2,37,472	3,49,490	3,50,536	4,16,020	6,58,120	5,57,128	4,81,673	5,63,367	6,60,938	7,26,176	6,61,326	6,83,910	8,52,862	10,06,724	8,50,139	11,72,884	9,77 647	9,94,769	10,27,202	10,36,894	9,57,410	10,93,369
Burma (Lower) . .	9,34,070	8,98,485	4,24,774	6,46,812	8,17,599	9,84,774	8,18,124	7,72,400	8,27,569	10,68,621	10,74,802	17,79,020	15,51,408	16,03,082	11,37,562	11,80,190	15,16,613	22,31,804	25,03,896	25,09,275	16,70,982	20,23,859	19,98,667	22,18,897
,, (Upper) . .	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	.	...	...	...	...	.	...	1,08,074	2,96,876
Assam	...	...	...	...	...	...	...	...	...	...	65,949	61,870	81,568	1,34,326	1,61,779	1,64 335	1,68,997	1,66,054	2,48 605	2,11,445	1,80,414	1,96,656	2,12,011	2,67,312
Coorg	57,488	1,01,157	32,508	79,082	98,496	1,06,135	72,144	92,466	84,425	1,10,284	58,015	1,07,160	75,927	1,01,015	52,020	1,01,786	87,857	1,00,364	1,38,022	87,822	1,13,233	89,386	99,291	1,27,028
Ajmere	...	...	...	...	...	...	...	...	24	304	202	410	905	3,002	1,241	1,861	1,124	4,065	7,126	8,198	10,456	9,697	11,274	14,293
Forest Surveys (Imperial) . . .	...	...	...	...	...	...	...	...	...	...	...	21	...	...	63	38	272	...	348	36	234	202	241	40
Forest School . .	...	...	...	...	...	...	...	...	...	...	...	...	...	..	...		.	...	...	.	73	273	415	777
Andamans . . .	2,808	2,515	3,495	6,070	5,071	3,036	7,373	5,880	6,862	4,184	5,516	5,363	4,679	1,301	5,564	2,437	27,734	48,407	70,858	24,762	22,213	23,944	31,870	1,04,062
Total .	33,33,828	22,87,878	19,19,842	20,03,049	24,73,668	29,85,132	30,33,610	34,56,043	41,45,286	45,97,567	42,50,730	50,54,246	43,50,129	49,76,455	42,71,208	46,13,894	48,46,869	61,39,121	64,51,305	70,85,108	59,44,204	63,04,965	67,77,906	68,19,685
Madras	4,49,770	4,76,674	4,48,110	5,81,342	5,29,185	6,97,699	5,33,412	5,76,261	5,95,188	6,13,653	5,14,401	6,77,873	5,92,573	5,50,310	6,06,788	6,26,168	7,36,880	8,06,908	9,06,442	9,53,704	11,66,916	11,98,650	12,46 911	13,74,920
Bombay	10,81,907	10,07,611	8,21,268	8,84,244	12,13,483	12,35-257	11,68,401	11,50,215	11,46,405	11,88,089	12,24,051	12,48,672	12,26,658	12,61,528	11,81,894	15,24,712	15,22,807	18,28,117	20,90,353	25,03,100	27,74,842	33,66,286	30,32,676	30,32,577
Total (British India) .	38,65,505	37,72,163	31,89,220	34,68,635	42,16,336	49,18,088	47,35,423	51,82,519	58,86,879	63,99,309	59,89,182	69,80,791	61,69,360	67,86,293	60,59,890	67,64,774	71,06,556	87,74,146	94,48,100	1,05,41,912	98,85,962	1,08,69,901	1,10,57,493	1,12,27,182
Berar	2,368	15,106	43,574	53,440	81,557	1,80,397	1,77,329	1,55,543	2,56,563	2,63,256	2,60,674	2,32,782	2,53,072	2,79,236	2,88,704	3 07,500	2,66,556	2,33,511	2,92,014	3,08,218	2,97,185	3,19,851	3,26,261	4,06,447
Forest Surveys (Berar) .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...	...	...	...	934	631	651	596
Baluchistan . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	..	14,376	18,616	5,039	4,752	6,089	14,982	14,081	14,063
Grand Total .	38,67,873	37,87,269	32,32,794	35,22,075	43,00,893	50,98,485	49,12,752	53,38,062	61,43,442	66,62,565	62,49,856	72,13,573	64,22,432	70,67,529	63,48,594	70,72,274	73,87,488	90,26,273	97,45,153	1,08,54,882	1,01,90,170	1,12,05,345	1,13,98,486	1,16,48,288

* The figures in this Statement have been revised by the Comptroller and Auditor General.
† Includes certain Home Receipts and undistributable and petty local items.

STATEMENT III—*continued.*

EXPENDITURE.

Provinces.	1864-65.	1865-66	1866-67	1867-68	1868-69.	1869-70.	1870-71.	1871-72	1872-73	1873-74	1874-75	1875-76	1876-77.	1877-78	1878-79	1879-80.	1880-81	1881-82.	1882 83	1883-84	1884-85.	1885-86.	1886-87	1887-88.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	44,207	16,981	32,978	38,924	33,007	54,106	51,423	66,530	67,150	79,216	81,210	48,239	44,004	98,099	63,956	73,810	65,291	77,635	87,268	98,266	96,306	88,245	86,299	78,626
Bengal	3,971	45,292	1,05,215	1,67,495	1,15,833	1,17,899	86,479	1,10,989	1,00,777	1,39,274	1,01,361	1,42,676	2,14,497	2,62,913	3,36,675	2,75,748	3,35,381	3,94,612	3,82,183	3,87,813	4,11,915	3,70,399	4,22,781	3,90,368
North-Western Provinces and Oudh	5,03,580	3,31,261	4,10,205	3,89,806	5,01,021	5,29,422	8,10,073	11,10,071	11,74,666	11,90,794	10,61,302	7,36,979	8,61,362	7,28,926	8,09,977	7,16,594	6,79,574	9,16,212	8,39,025	10,41,885	10,20,101	9,74,519	9,19,580	8,30,748
Punjab	5,78,616	2,71,369	2,63,373	2,88,029	3,17,634	7,41,432	11,95,655	7,07,619	8,90,369	6,11,556	6,58 983	5,56,911	5,25,659	5,20,631	5,23,551	4,80,676	4,95,368	5,16,269	5,60,750	6,53,146	5,58,070	6,75,483	7,16,510	6,77,912
Central Provinces	1,55,270	1,08,597	1,49,408	2,18,434	3,19,126	4,74,930	3,17,928	2,31,633	2,50,578	2,85,939	2,94,449	3,73,327	2,90,295	3,22,034	3,93,758	5,22,574	4,95,512	4,97,013	4,12,247	4,36,058	4,95,821	4,45,432	4,99,293	5,52,939
Burma (Lower)	2,62,930	3,11,941	2,86,993	3,30,526	4,24,333	4,22,106	4,00,851	3,79,217	3,36,759	4,75,304	6,63,547	8,15,659	10,05,554	8,58,231	7,18,402	7,53,490	7,12,568	11,50,224	12,28,955	12,17,824	12,12,233	11,50,952	10,75,830	10,32,694
„ (Upper)	.	..	...	...	.	...	...	...	.		...	..	..	.		..	...	...	.	...	.	...	2,188	1,21,152
Assam	...	...	...	...	...	...		..			60,367	63,397	90,520	1,01,153	1,26,028	1,32,829	1,42,725	1,65,361	1,71,823	1,95,562	1,97,699	2,11,494	2,12,287	2,26,892
Coorg	3,407	12,99	8,550	13,722	17,848	33,064	24,747	70,178	29,478	45,952	37,999	40,168	33,692	36,268	34,829	55,165	56,487	59,796	64,770	75,023	76,951	65,690	74,088	72,629
Ajmere	...	...	...	...	...		...	..	13 054	17,932	15,281	27,346	22,460	14,926	13,445	13,750	12,423	13,954	11,284	14,574	16,316	16,469	20,714	18,897
Forest Surveys (Imperial)	...	...	..	...	...	..	..		.	59,556	78,090	58,930	58,929	60,165	60,325	46 878	40,335	42,489	41,595	30,940	19,823	19,180	28,348	32,868
Forest School	...	..	...	...	...		...	...	.	..	.	...	.		..	..	...	...	..	...	22,568	24,239	30,831	33,129
Andamans	...	.			..	150	...	1,651	1,896	..	...		1,307	1,096	...	7,177	2,160	2,306	1,840	12,161	22,760	37,035	25,769	62,679
Total	15,51,981	10,98,437	12,55,922	14,46,936	17,28,902	23,73,109	28,87,156	26,79,888	28,64,728	29,05,523	30,52,589	28,63,632	31,48 279	30,04,442	30,82,949	30,72,691	30,37,324	38,35,871	38,01,740	41,67,252	41,50,563	40,79,137	41,14,548	41,31,532
Madras	2,64,780	3,51,392	3,42,827	4,02,674	4,01,617	4,21,316	4,47,267	3,91,921	5,48,746	4,74,920	5,95,941	5,92,039	6,35,560	5,65,624	4,95,914	5,48,527	5,19,270	6,03,419	6,45,352	7,86,733	8,96,505	9,37,972	11,53,122	11,29,212
Bombay	3,72,187	7,77,139	6,51,641	5,55,039	6,31,226	5,56,015	6,49,759	5,97,831	7,25,031	7 21,594	8,36,675	7,94,141	8,38,979	8,77,716	10,04,923	10,76,989	11,67,347	11,69,181	12,78,770	15,64,172	17,78,723	18,39,461	19,52,910	19,44,005
Total (British India)	21,88,948	22,26 968	22,50,390	24,04,649	27,61,745	33,50,440	39,74,182	36,67,640	41,38,505	41,02,037	44,85,205	42,49,812	46,22,818	44 47,782	45,83,786	47,98,207	47,24,441	56 08,471	57,25,862	65,18,157	68,25,791	68,56,570	72,20,580	72,04,750
Berar	478	8,991	13,718	18,669	34,105	81,569	81,972	1,00,829	83,631	86,350	91,389	91,449	94,652	1,09,968	1,07,350	1,10,506	1,28,968	1,52,985	1,55,054	1,56,779	1,52,649	1,59,242	1,71,704	1,83,765
Forest Surveys (Berar)	...	...	...	...	...	...		...		...	.	.	.	...	...	.	...	.	...	15,043	34,804	42,940	45,472	42,098
Baluchistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16,416	17,682	11,962	16,911	13,266	15,799	17,836	17,753
Grand Total	21,89,426	22,35,959	22,64,108	24,23,318	27,95,850	34,32,009	40,56,154	37,68,469	42,22,136	41,88,387	45,76,594	43,41,311	47,17,470	45,57,750	46,91,136	48,08,713	48,69,825	57,79,138	58,92,878	67,06,890	70,26,510	70,74,551	74,55,592	74,48,366

* Includes pay of Inspector General of Forests, certain Home charges, and undistributable and petty local items.

STATEMENT III—*concluded.*

SURPLUS.

Provinces.	1864-65.	1865-66.	1866-67.	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.
	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Imperial*	−43,786	13,978	−31,326	−38,381	−31,848	−52,670	−48,316	−64,196	−64,379	−77,991	−80,666	−46,774	−41,519	38,673	−47,240	−56,596	−46,404	−50,228	−56,536	−65,359	−69,732	−73,537	−82,113	−73,779
Bengal	15,789	−6,634	−59,625	−1,11,456	−45,218	1,26,758	16,770	33,730	49,075	40,092	84,571	55,598	7,904	1,63,315	77,352	1,73,776	2,25,959	2,39,122	3,11,776	3,06,521	1,59,237	2,27,033	2,30,853	2,67,426
N.-W. Provinces and Oudh	2,19,860	4,00,121	3,68,996	1,94,697	2,84,189	3,03,523	−3,85,816	60,829	7,64,449	7,41,883	3,02,056	5,27,377	2,89,309	4,74,182	3,16,778	3,23,372	2,62,654	1,49,882	1,74,378	5,69,498	5,52,218	4,86,976	6,53,976	4,16,706
Punjab	−51,535	79,311	1,32,677	−7,589	27,218	−3,47,303	−2,48,419	2,597	−2,37,374	1,20,983	1,75,891	3,52,920	73,095	1,63,080	−22,935	1,69,143	1,76,310	1,72,039	2,05,959	2,57,031	1,91,282	1,74,936	4,10,767	1,09,024
Central Provinces	−86,510	25,445	88,064	1,31,056	31,410	−58,910	3,40,192	3,25,495	2,31,095	2,82,428	3,66,489	3,52,849	3,71,031	3,61,876	4,59,104	4,84,150	3,54,627	6,75,871	5,65,400	5,58,711	5,31,381	5,91,462	4,58,117	5,40,430
Burma (Lower)	6,71,140	15,86,544	1,37,781	3,16,286	3,93,266	5,62,668	4,17,273	3,93,183	4,90,810	5,93,317	4,11,255	9,63,361	5,45,854	7,44,851	4,19,160	4,26,700	8,04,045	10,81,580	12,71,941	12,91,451	4,58,749	8,72,907	9,22,837	11,86,203
Burma (Upper)	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,05,886	1,75,724
Assam	...	...	...	...	...	...	...	...	..	...	5,582	−1,527	−8,952	33,173	35,751	31,506	26,272	693	76,782	11,883	−17,285	−14,838	−276	40,420
Coorg	54,061	88,161	23,858	95,360	80,648	75,071	47,397	22,288	51,946	61,332	20,016	67,252	42,235	64,747	17,191	46,621	31,370	40,568	73,252	12,799	36,282	23,696	25,203	54,399
Ajmere	...	...	...	...	...	...	...	...	−13,030	−17,628	−15,079	−26,936	−21,555	−11,924	−12,204	−11,889	−11,299	−9,889	−4,158	−6,376	−5,860	−6,772	−9,470	−4,604
Forest Surveys (Imperial)	...	...	...	...	...	...	...	...	...	−59,556	−78,090	−58,909	−58,929	−60,165	−60,262	−46,840	−40,063	−42,489	−41,247	−30,904	−19,589	−18,978	−28,107	−32,828
Forest School	...	...	..	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	−22,495	−23,966	−30,416	−32,352
Andamans	2,808	2,515	3,495	6,070	5,071	2,886	7,373	4,229	4,966	4,181	5,516	5,363	3,372	295	5,564	−4,740	25,574	46,101	69,018	12,601	−547	−13,091	6,101	41,393
Total	7,81,847	11,89,441	6,63,920	5,56,113	7,44,756	6,12,023	1,46,454	7,78,155	12,80,558	16,92,044	11,98,131	21,90,614	12,01,850	19,72,013	11,88,259	15,35,203	18,09,045	23,03,250	26,49,565	29,17,356	17,93,641	22,25,828	26,63,358	26,88,152
Madras	1,84,990	1,25,282	1,05,283	1,78,668	1,27,568	2,76,383	86,145	1,81,340	46,442	1,38,733	−81,540	85,834	−42,987	−15,314	1,10,874	77,641	2,17,610	2,03,409	2,61,090	1,66,971	2,70,411	2,60,678	93,789	2,45,708
Bombay	7,09,720	2,30,472	1,69,627	3,29,205	5,82,257	6,79,242	5,28,642	5,52,384	4,21,374	4,66,495	3,87,376	4,54,531	3,87,679	3,83,812	1,76,971	4,17,723	3,55,460	6,58,936	8,11,583	9,38,928	9,96,119	15,26,825	10,79,366	10,88,572
Total (British India)	16,76,557	15,45,195	9,38,830	10,63,986	14,54,591	15,67,648	7,61,241	15,14,879	17,18,374	22,97,272	15,03,977	27,30,979	15,46,542	23,40,511	14,76,104	20,60,567	23,82,115	31,65,675	37,22,238	40,23,755	30,60,171	40,13,331	38,36,913	40,22,432
Berar	1,890	6,115	29,856	34,771	50,452	98,822	95,357	54,714	1,72,932	1,76,906	1,69,285	1,41,283	1,58,420	1,69,268	1,81,354	1,96,994	1,37,583	80,526	1,36,990	1,51,439	1,44,536	1,60,669	1,54,557	2,22,682
Forest Surveys (Berar)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	−15,043	−33,870	−42,309	−44,821	−41,502
Baluchistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	−2,040	934	−6,923	−12,159	−7,177	−837	−3,755	−3,690
Grand Total	6,78,447	15,51,310	9,68,686	10,98,757	15,05,043	16,66,476	8,56,598	15,69,593	19,21,306	24,74,178	16,73,262	28,72,262	17,04,962	25,09,779	16,57,458	22,57,561	25,17,658	32,47,135	38,52,275	41,47,992	31,63,660	41,30,794	39,42,894	41,99,922

* Includes pay of Inspector General of Forests, certain Home charges, and undistributable and petty local items.

Statement showing the Revenue and Expenditure for the past five years in Bengal.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total.	Surplus.	Conservancy and Works.	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	11,260	6,94,334	1,95,905	1,91,908	3,87,813	3,06,521	61	17	17	34	27	28	28	56
1884-85 .	11,493	5,71,152	2,09 197	2,02,418	4,11,915	1,59,237	50	18	18	36	14	37	35	72
1885-86 .	11,224	5 97,432	1 51,032	2,19,367	3,70,399	2,27,033	53	13	20	33	20	25	37	62
1886-87 .	11,214	6,53,634	1,92,710	2,30,071	4,22,781	2,30,853	58	17	21	38	20	30	35	65
1887-88 .	11,209	6,57,794	1,73,732	2,16,636	3,90,368	2,67,426	59	16	19	35	24	26	33	59
Average .	11,280	6,31,869	1,84,575	2,12,080	3,96,655	2,38,214	56	16	19	35	21	29	33	62

Statement showing the Revenue and Expenditure for the past five years in the Central Circle, North-Western Provinces and Oudh.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total		Revenue	Conservancy and Works	Establishments.	Total.	Surplus.	Conservancy and Works	Establishments.	Total.
	Sq. miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	1,691	5,34,280	1,52,518	1,13,344	2,65,892	2,68,388	316	90	67	157	159	28	22	50
1884-85 .	1,688	4,92,497	1,38,766	1,23,146	2,61,912	2,30,585	292	82	73	155	137	28	25	53
1885-86 .	1,688	4 44,133	1,48,903	1,15,576	2,64,479	1,78,651	263	88	69	157	106	33	27	60
1886-87 .	1,794	5,78,023	1,60,462	1,16,655	2 77,117	3,00,906	322	89	65	154	168	28	20	48
1887-88 .	1,795	4,60,450	1,29,358	1,08,185	2,37,543	2,22,907	256	72	60	132	124	28	23	51
Average .	1,731	5,01,677	1,46,007	1,15,381	2,61,388	2,40,298	290	84	67	151	139	29	23	52

Statement showing the Revenue and Expenditure for the past five years in the Oudh Circle, North-Western Provinces and Oudh.

Year.	Area under control of the Forest Department	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works	Establishments.	Total	Surplus.	Conservancy and Works.	Establishments.	Total.
	Sq miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	1,132	8,05,538	3,90,486	98,728	4,89,214	3,16,324	711	345	87	432	279	49	11	60
1884-85 .	1,211	7,77 021	4,44,204	1,06,554	5,50,758	2,26,263	612	367	88	455	187	57	14	71
1885-86 .	1,194	6,81 713	3,98,533	1,04,664	5,03,197	1,78 516	571	334	87	421	150	59	15	74
1886 87 .	1,203	6,58,674	2,71,368	1,03,752	3,75,120	2,83,554	548	226	86	312	236	41	16	57
1887-88 .	1,203	4,29,870	2,13,919	1,00,519	3,14,438	1,15,432	357	178	83	261	96	50	23	73
Average .	1,188	6,70,563	3,43,702	1,02,843	4,46,545	2,24,018	565	290	86	376	189	51	16	67

Statement showing the Revenue and Expenditure for the past five years in the School Circle, North-Western Provinces and Oudh.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments	Total.	Surplus	Conservancy and Works.	Establishments.	Total.
	Sq miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	774	2,71,565	1,85,681	1,01,097	2,86,778	—15,213	351	240	130	370	—19	68	37	105
1884-85 .	764	3,02,801	1,30,768	76,664	2,07,432	95,369	396	171	100	271	125	43	25	68
1885-86 .	803	3,36,649	1,30,406	76,437	2,06,843	1,29,806	419	162	95	257	162	39	22	61
1886-87 .	817	3,36,859	1,97,420	69,923	2,67,343	69,516	412	242	85	327	85	58	21	79
1887-88 .	815	3,57,134	1,90,676	86,916	2 77,592	79,542	438	234	106	340	98	54	24	78
Average .	795	3,21,002	1,66,990	82,208	2,49,198	71,804	403	210	103	313	90	52	26	78

Statement showing the Revenue and Expenditure for the past five years in the Punjab.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus	Revenue and Expenditure per square mile of Area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total		Revenue	Conservancy and Works	Establishments.	Total	Surplus	Conservancy and Works.	Establishments.	Total.
	Sq. miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	4,619	9,10,177	3,51,717	3,01,429	6,53,146	2,57,031	197	76	65	141	56	39	33	72
1884-85 .	4,610	7,49,352	2,54,111	3,03,959	5 58,070	1,91 282	162	55	66	121	41	34	40	74
1885-86 .	4,447	8,50,419	3,67,561	3,07,919	6,75,183	1,74,936	191	83	69	152	39	43	36	79
1886-87 .	5,200	11,27,277	4,07,635	3,08,875	7,16,510	4,10,767	217	78	60	138	79	36	27	63
1887-88 .	5.243	7,86,936	3,75,398	3,02,514	6,77,912	1,09,024	150	71	58	129	21	48	38	86
Average .	4,824	8,81,832	3,51,285	3,04,939	6,56,224	2,28,608	183	72	64	136	47	40	35	75

Statement showing the Revenue and Expenditure for the past five years in the Central Provinces.

Year.	Area under control of the Forest Department	Gross Revenue	Expenditure			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works	Establishments	Total		Revenue	Conservancy and Works	Establishments	Total	Surplus	Conservancy and Works.	Establishments.	Total.
	Sq miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	19,748	9,94,769	2,57,252	1,78,806	4,36,058	5,58,711	50	13	9	22	28	26	18	44
1884-85 .	19,814	10,27,202	3,24,128	1,71,693	4,95,821	5,31,381	52	16	9	25	27	31	17	48
1885 86 .	19,838	10,36,894	2,59,404	1,86,028	4,45,432	5,91,462	52	13	9	22	30	25	18	43
1886-87 .	20,359	9,57,110	2,86,689	2,12,604	4,99,293	4,58,117	47	14	10	24	23	30	22	52
1887-88 .	20,378	10,93,369	3,01,506	2,48,433	5,52,939	5,40,430	53	15	12	27	26	28	23	51
Average .	20 033	10,21,929	2,86,396	1,99,513	4,85,909	5,36,020	51	14	10	24	27	28	20	48

Statement showing the Revenue and Expenditure for the past five years in the Pegu Circle of Burma.

Year.	Area under control of the Forest Department.	Gross Revenue	Expenditure.			Net Surplus	Revenue and Expenditure per square mile of Area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total		Revenue	Conservancy and Works	Establishments	Total	Surplus	Conservancy and Works.	Establishments.	Total.
	Sq. miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	3,010	18,51,228	6,12,439	1,91,514	8,03,953	10,47,275	608	201	63	264	344	33	10	43
1884-85 .	3,226	12,71,327	7,16,734	1,87 385	9,04,119	3,67,208	394	222	58	280	114	56	15	71
1885 86 .	3,295	15,54,616	6,45,692	1,86,745	8,32,437	7,22,179	471	196	56	252	219	42	12	54
1886-87 .	3,285	14,97,355	4,69,928	1,85,247	6 55,175	8,42,180	454	144	56	199	255	32	12	44
1887-88 .	3,298	16,75,094	5,20,545	1,82,775	7,03,320	9,71,774	508	158	55	213	295	31	11	43
Average .	3,231	15,69,924	5,93,068	1,86,733	7,79,801	7,90,123	487	184	58	242	245	39	12	51

Statement showing the Revenue and Expenditure for the past five years in the Tenasserim Circle of Burma.

Year.	Area under control of the Forest Department	Gross Revenue	Expenditure.			Net Surplus	Revenue and Expenditure per square mile of Area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works	Establishments.	Total.		Revenue.	Conservancy and works	Establishments	Total	Surplus	Conservancy and Works	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	719	6,58,047	3,27,272	86,599	4,13,871	2,44,176	915	455	120	575	340	50	13	63
1884-85 .	716	3,99 653	2,22,995	85,118	3,08,113	91,540	558	311	119	430	128	56	21	77
1885-86 .	1,176	4 69,243	2,29,310	89,205	3,18,515	1,50,728	399	195	76	271	128	49	19	68
1886 87 .	1,493	5,01,312	3,32,311	88 344	4,20,655	80,657	336	223	59	282	54	66	18	84
1887-88 .	1,793	5,43,803	2,41,154	88,220	3,29,374	2,14,429	303	134	49	183	120	44	16	60
Average .	1,179	5,14,412	2,70,609	87,497	3,58,106	1,56,306	502	263	85	348	154	53	17	70

Statement showing the Revenue and Expenditure for the year 1887-88 in Upper Burma.

Year.	Area under control of the Forest Department	Gross Revenue	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works	Establishments	Total.		Revenue	Conservancy and Works	Establishments.	Total	Surplus	Conservancy and Works.	Establishments.	Total.
	Sq. miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1887-88 .	5,188	2,96,876	44,218	796,34	1,21,152	1,75,724	57	8	15	23	34	15	26	41

Statement showing the Revenue and Expenditure for the past five years in Assam.

Year.	Area under control of the Forest Department.	Gross Revenue	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total	Surplus.	Conservancy and Works.	Establishments	Total.
	Sq miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	9 599	2,11,445	90,642	1,08,920	1,99,562	11,883	22	10	11	21	1	43	51	94
1884-85 .	9,595	1,80,411	94,740	1,02,960	1,97,700	—17,287	19	10	11	21	—2	53	57	110
1885 86 .	9,587	1,96,656	92,485	1,19,009	2,11,494	—14,838	20	10	12	22	—2	47	61	108
1886-87 .	10,058	2,12,011	79 168	1,33,119	2,12,287	—276	21	8	13	21	.	37	63	100
1887-88 .	10,045	2,67,312	86,005	1,40,887	2,26,892	40,420	27	9	14	23	4	32	53	85
Average.	9,777	2,13,567	88,608	1,20,979	2,09,587	3,960	22	9	12	21	1	42	57	99

Statement showing the Revenue and Expenditure for the past five years in Coorg.

Year	Area under control of the Forest De partment.	Gross Revenue	Expenditure.			Net Surplus	Revenue and Expenditure per square mile of Area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works	Establishments.	Total.		Revenue	Conservancy and Works.	Establishments.	Total.	Surplus	Conservancy and Works	Establishments.	Total.
	Sq miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	233	87,822	45,037	29,986	75,023	12 799	377	193	129	322	55	51	34	85
1884 85 .	239	1,13,233	44,551	32,100	76,951	36,282	475	187	136	323	152	39	29	68
1885-86 .	239	89,386	33,943	31,747	65,690	23,696	374	142	133	275	99	38	35	73
1886-87 .	242	99,291	45,887	28,201	74,088	25,203	410	190	116	306	104	46	29	75
1887-88 .	858	1,27,028	45,098	27,531	72,629	54,399	148	53	32	85	63	35	22	57
Average .	362	1,03,352	42 903	29,973	72,876	30,476	357	153	109	262	95	42	30	72

Statement showing the Revenue and Expenditure for the past five years in Ajmere.

Year.	Area under control of the Forest De partment	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of Area under control of the Forest Department.					Percentage of Gross revenue expended on		
			Conservancy and Works	Establishments.	Total		Revenue.	Conservancy and Works	Establish ments	Total	Surplus	Conservancy and Works	Establish ments	Total
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	139	8,198	4,100	10,474	14,574	— 6,376	59	30	75	105	— 46	50	128	178
1884-85 .	144	10,456	5,174	11,142	16,316	— 5,860	72	36	77	113	— 41	49	107	156
1885 86 .	144	9,697	4,210	12,259	16,469	— 6,772	67	29	85	114	— 47	43	127	170
1886-87 .	139	11,274	8,281	12,463	20,744	— 9,470	81	59	90	149	— 68	73	111	184
1887-88 .	139	14,293	5,887	13,010	18,897	— 4,604	103	42	94	136	— 33	41	91	132
Average .	141	10,784	5,530	11,870	17,400	— 6,616	76	39	84	123	— 47	51	113	164

Statement showing the Revenue and Expenditure for the past five years in the Andamans.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per acre of area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total	Surplus.	Conservancy and Works.	Establishments.	Total.
	Acres.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	10	24,762	...	...	12,161	12,601	2,476	...	...	1,216	1,260	...	...	49
1884-85 .	10	22,213	...	...	22,760	—547	2,221	...	...	2,276	—55	...	...	102
1885-86 .	10	23,944	...	...	37,035	—13,091	2,394	...	...	3,703	—1,309	...	...	154
1886-87 .	10	31,870	12,296	13,473	25,769	6,101	3,187	...	...	2,577	610	...	...	81
1887-88 .	10	1,04,062	...	...	62,679	41,383	10,406	...	...	6,268	4,138	...	...	39
Average .	10	41,370	...	...	32,081	9,289	4,137	...	...	3,208	929	...	...	85

Statement showing the Revenue and Expenditure for the past five years in Berar.

Year.	Area under control of the Forest Department.	Gross Revenue	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under Control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works	Establishments	Total.	Surplus.	Conservancy and Works	Establishments.	Total.
	Sq. miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	4,395	3,08,217	52,309	1,04,230	1,56,539	1,51,678	70	12	24	36	34	17	34	51
1884-85 .	4,364	2,93,448	48,684	1,03,830	1,52,514	1,40,934	67	11	24	35	32	17	35	52
1885-86 .	4,342	3,19,851	63,393	95,849	1,59,242	1,60,609	74	15	22	37	37	20	30	50
1886-87 .	4,141	3,26,261	64,675	1,07,029	1,71,704	1,54,557	78	15	26	41	37	20	33	53
1887-88 .	4,116	4,06,447	80,960	1,02,805	1,83,765	2,22,682	98	19	25	44	54	20	25	45
Average .	4,271	3,30,845	62,004	1,02,748	1,64,752	1,66,091	77	14	24	38	39	19	31	50

Statement showing the Revenue and Expenditure for the past five years in Baluchistan.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under control of the Forest Department					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total.	Surplus.	Conservancy and Works.	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	8	4,752	5,161	11,750	16,011	—12,159	594	645	1,469	2,114	—1,520	109	247	356
1884-85 .	8	6,089	2,669	10,597	13,266	—7,177	761	334	1,324	1,658	—897	44	174	218
1885-86 .	8	14,962	4,755	11,044	15,799	—837	1,870	594	1,381	1,975	—105	32	73	105
1886-87 .	12	14,081	6,574	11,262	17,836	—3,755	1,173	548	938	1,486	—313	47	80	127
1887-88 .	18	14,063	5,121	12,632	17,753	—3,690	781	284	702	986	—205	36	90	126
Average .	11	10,789	4,856	11,457	16,313	—5,524	1,036	481	1,163	1,644	—668	53	133	186

Statement showing the Revenue and Expenditure for the past five years in the Northern Circle of the Madras Presidency.

Year.	Area under control of the Forest Department	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments	Total.	Surplus.	Conservancy and Works	Establishments.	Total.
	Sq. miles	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	1,086	4,13,338	1,27,322	1,75,130	3,02,452	1,10,881	380	117	161	278	102	31	42	73
1884-85 .	4,682	5,37,197	1,97,148	2,01,418	3,98,566	1,38,631	115	42	43	85	30	37	37	74
1885-86 .	4,659	5,46,282	1,88,930	2,12,887	4,01,817	1,44,465	117	40	46	86	31	35	39	74
1886-87 .	5,296	5,52,248	2,20,443	2,14,523	4,34,966	1,17,282	104	42	40	82	22	40	39	79
1887-88 .	7,960	5,64,728	2,18,009	2,35,785	4,53,794	1,10,929	71	27	30	57	14	39	41	80
Average .	4,737	5,22,757	1,90,370	2,07,949	3,98,319	1,24,438	157	53	64	117	40	36	40	76

Statement showing the Revenue and Expenditure for the past five years in the Southern Circle of the Madras Presidency.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total.	Surplus.	Conservancy and Works.	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	2,016	5,45,658	2,24,123	2,54,341	4,78,464	67,194	266	109	124	233	33	41	47	88
1884-85 .	4,600	6,25,492	2,27,041	2,87,579	5,14,620	1,10,872	136	49	63	112	24	36	46	82
1885-86 .	6,462	6,52,318	2,34,006	3,00,608	5,34,614	1,17,704	102	36	47	83	19	36	46	82
1886-87 .	6,872	6,94,535	3,80,192	3,40,529	7,20,721	−26,186	101	55	50	105	−4	55	49	104
1887-88 .	9,049	8,10,197	3,35,437	3,28,981	6,64,418	1,45,779	89	37	36	73	16	41	41	82
Average .	5,806	6,65,640	2,80,160	3,02,407	5,82,567	83,073	139	57	64	121	18	42	46	88

Statement showing the Revenue and Expenditure for the past five years in the Northern Circle of the Bombay Presidency.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total.	Surplus.	Conservancy and Works.	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	8,470	9,58,316	2,70,000	2,41,402	5,11,402	4,46,914	113	32	28	60	53	28	25	53
1884-85 .	7,998	10,08,725	4,04,378	2,85,710	6,90,088	3,18,637	126	50	36	86	40	40	28	68
1885-86 .	8,029	10,37,297	1,89,882	4,73,758	6,63,640	3,73,657	129	24	59	83	46	18	46	64
1886-87 .	8,311	9,13,101	2,09,073	4,78,792	6,87,865	2,25,236	110	25	58	83	27	23	52	75
1887-88 .	8,194	9,68,625	2,26,096	4,97,039	7,23,135	2,45,489	118	27	61	88	30	23	51	74
Average .	8,200	9,77,213	2,69,886	3,95,340	6,55,226	3,21,987	119	32	48	80	39	26	41	67

Statement showing the Revenue and Expenditure for the past five years in the Southern Circle of the Bombay Presidency.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total.	Surplus	Conservancy and Works.	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	5,314	9,02,291	3,42,725	1,47,286	4,90,011	4,12,280	170	64	28	92	78	38	16	54
1884-85 .	5,311	12,89,562	4,71,494	1,92,884	6,64,378	6,25,184	243	89	36	125	118	36	15	51
1885-86 .	5,230	17,92,114	4,96,279	2,26,307	7,22,586	10,69,528	342	95	43	138	204	28	12	40
1886-87 .	5,234	14,33,793	4,44,535	2,50,079	6,94,614	7,39,179	274	85	48	133	141	31	17	48
1887-88 .	5,228	14,34,650	4,96,454	2,49,806	7,46,260	6,88,390	274	95	48	143	131	35	17	52
Average .	5,265	13,70,182	4,50,297	2,13,273	6,63,570	7,06,912	260	85	41	126	134	34	15	49

Statement showing the Revenue and Expenditure for the past five years in the Sind Circle of the Bombay Presidency.

Year.	Area under control of the Forest Department.	Gross Revenue.	Expenditure.			Net Surplus.	Revenue and Expenditure per square mile of area under control of the Forest Department.					Percentage of Gross Revenue expended on		
			Conservancy and Works.	Establishments.	Total.		Revenue.	Conservancy and Works.	Establishments.	Total.	Surplus.	Conservancy and Works	Establishments.	Total.
	Sq. miles.	R	R	R	R	R	R	R	R	R	R	%	%	%
1883-84 .	626	6,42,493	4,08,653	75,923	4,84,576	1,57,917	1,026	653	121	774	252	63	12	75
1884-85 .	636	4,76,493	2,77,004	85,439	3,62,443	1,14,050	749	436	134	570	179	58	18	76
1885-86 .	673	5,36,871	2,96,893	1,05,767	4,02,660	1,34,214	797	441	157	598	199	55	20	75
1886-87 .	699	6,85,782	4,04,090	1,13,613	5,17,703	1,68,079	981	578	163	741	240	59	16	75
1887-88 .	894	6,32,302	3,54,985	1,11,142	4,66,127	1,66,175	707	397	124	521	186	56	18	74
Average .	3,528	5,94,789	3,48,325	98,377	4,46,702	1,48,087	852	501	140	641	211	58	17	75

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